



**The  
World's Greatest  
Building Paper**

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## American Carpenter and Builder

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### House Warming and Heart Warming

WHEN we asked our subscribers last issue to help us celebrate the acquisition of our new home, we knew full well the fund of interest and loyalty among our readers on which we might draw.

The response to the special "house warming" subscription offer has been just what we expected. Many of our old readers showed the offer to their friends and told them the kind of building magazine the AMERICAN CARPENTER AND BUILDER is.

We appreciate this. It is heart warming.

No, of course we didn't get the 80,000! Hardly that, so soon. But we are happy on the way, as the saying is; and with your further assistance we will reach it yet.

Isn't there some brother builder you know who ought to be reading the best building paper—but isn't? We want *him* with us. Now make a note of it to show him that special offer.

In any case, we thank you just the same.

## Official Statement

The following statement is a copy of the one required by the United States Government for all publications to make under the Act of Congress approved Aug. 24, 1912. The law requires that two copies of this statement shall be deposited in the Post Office where the publication is mailed and further requires that the statement shall be printed in the newspaper, magazine or other periodical making the same. The following is a copy of the statement made by the American Carpenter and Builder Co. and filed at the Post Office at Chicago on April 1, 1913.

**COPY**

Statement of the Ownership, Management, Circulation, etc., of the **American Carpenter and Builder**, published monthly at Chicago, Ill., required by the Act of Aug. 24, 1912.

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(Signed) **E. L. HATFIELD**,  
Business Manager.

Sworn to and subscribed before me this 1st day of April, 1913.

**BENJAMIN ROSENBERG**,  
Notary Public.

Commission expires February 8, 1916.

[Seal]

# What Chicago is Doing for her Carpenter Apprentices

By William J. Bogan

Principal Lane Technical High School, Chicago

**I**N these days of much talk and little work relating to vocational training, the information comes with a surprise to most people that the oldest system of public vocational education in the United States has been in operation in the City of Chicago for twelve years. Notwithstanding discouragements due to inadequacy of buildings and equipment and to the constant shifting of pupils from school to school, employers and employees, regardless of differences on other subjects, have held to the ideal of a practical school wherein apprentices might receive the type of education suited to their peculiar needs.

A department for apprentices was opened in the Chicago Public Schools in 1901 as a result of the adjustment of labor questions following the labor disturbances in 1900. The origin of the school is interesting in view of its present stage of development.

**F**OR years the subject of apprenticeship had been a troublesome one owing to obsolete rules, lack of system and the selfishness of various individuals. Finally conditions became so bad that the Bricklayers' and Stone-masons' Union and the Employers Association, working through a joint arbitration board, made an investigation to ascertain

the number of apprentices and to suggest remedies for the chaotic conditions in the building trades. The joint arbitration board thereupon requested Mr. Andrew Lanquist, one of their number, to take up the matter, which he did with a fervor born of a warm personal interest in the apprentices. He found that the boys were paid according to widely varying schedules, that many received no pay during



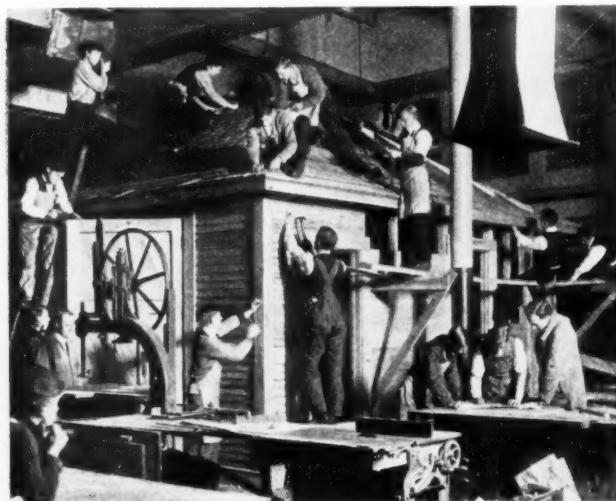
Apprentice Boys in Drafting Class. Three Months of Such Work Each Winter Interprets for Them Their Daily Work on the Job

the months when work was slack, and that some had no permanent employer.

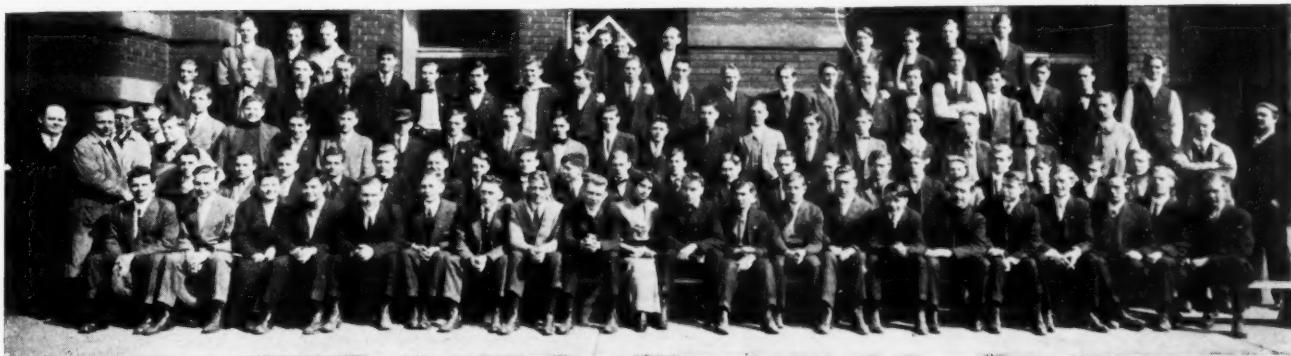
Mr. Lanquist recommended: (1) that a uniform wage scale with weekly payments throughout the year be adopted for the apprentices; and (2) that the apprentices be required to attend school at least three months out of each year, five days a week and not less than five hours a day.

The difficulty of finding a school then developed. Private institutions could not be considered seriously because of the expense of tuition. Finally the Board of Education agreed to make provision for the apprentices, and the first apprentice school opened with an attendance of eight pupils at the English High and Manual Training School. With patient, optimistic persistence, Mr. Lanquist upheld the school during the following years, advancing money to keep needy boys in school, urging State legislation to back up the good work, over-coming employers' objections to the wage scale and inspiring apprentices, journeymen and employers with his enthusiasm.

The joint arbitration board of carpenters and em-



Class Building a Frame Garage in the Big Shop at Lane Tech.



□ **The Builders of Tomorrow** □  
**Part of the Apprentice Boys and Teachers at Lane Tech.**

ployers adopted the system in 1906 and did much to make it a success. Throughout the early years English, mathematics and drawing were regarded as essential subjects, but occasionally other subjects were introduced. Unfortunately most of the work was of a rather impractical nature except in drawing, and even that was sometimes too theoretical. Another serious disadvantage lay in the fact that the school had no fixed habitation. As the term

to send apprentices of the first and second years to the Crane Technical High School and those of the third and fourth years to the Lane Technical High School where they would have the same advantages as the high school boys. Radical changes were made in the course of study, all tending to make the work of a more practical nature. True, the schools had employed some practical teachers before, but they had remained only a few years at most, the more able ones going into the high schools or into architects' offices. (One of the ablest of these teachers was recently appointed state architect). The short term of employment, even with an increase of salary, deterred men with the ability to make themselves felt in the industrial world from entering the apprentice schools. In the technical schools, however, men from the shops and drafting rooms are employed throughout the entire school year. Hence the desire of teachers to return to the industries is not so great as it was under the old plan. The most radical innovation made by the present Board of Education was the enactment of a rule that permits the employment, without examination, of skilled tradesmen as teachers of trades or of technical subjects. This action disposes of a criticism often made that the public school system,



**Class in Mathematics Where All Problems Apply Directly to Builders' Work**

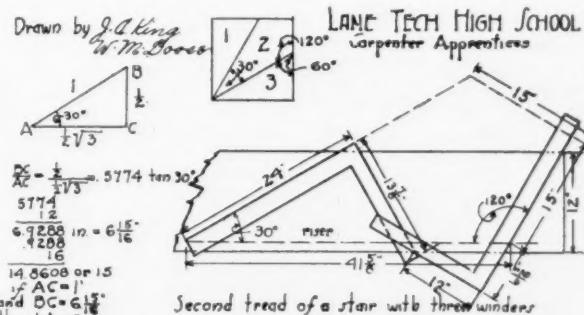
was comparatively short, the Board of Education did not feel the necessity of establishing permanent quarters. As a consequence the school was shifted year after year to suit the limited accommodations of the Board of Education. Another serious handicap during the earlier years was the difficulty the Board had in securing teachers with the special training necessary for this work.

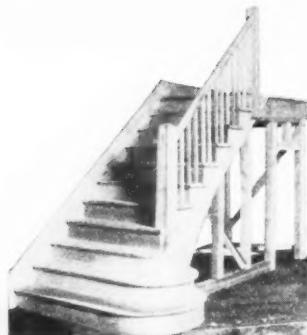
**S**HORTLY after Dr. Ella Flagg Young became superintendent of the Chicago Public Schools she took steps to remedy defects inherent in the original plan. Realizing that a permanent home with good equipment and practical teachers would add greatly to the efficiency of the apprentice schools, she secured authority from the Board of Education

Winder scale					
Line or adjacent side	Opp side in ft. adjacent side = 1 ft	Degrees	Tangent	Opp side if adjec- tive side = 1 ft	Approximate value for opp side
$\frac{1}{4} 3$	30°	5774	$6\frac{15}{16}$	$6\frac{15}{16}$	
$\frac{1}{4} 4$	22½°	4142	$4\frac{31}{32}$	$4\frac{15}{16}$	
$\frac{1}{4} 5$	18°	3249	$3\frac{29}{32}$	$3\frac{7}{8}$	
$\frac{1}{2} 5$	36°	7265	$0\frac{3}{32}$	$8\frac{11}{16}$	
$\frac{1}{2} 7$	23½°	4816	$5\frac{25}{32}$	$5\frac{1}{4}$	
$\frac{1}{2} 9$	20°	3640	$4\frac{7}{8}$	$4\frac{7}{8}$	

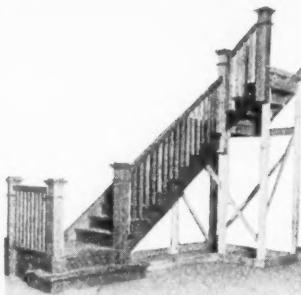
The work shown above illustrates the adaptation of the tangent table, worked out in trigonometry, to the use of the carpenter in obtaining cuts at certain angles, by means of the steel square. The tangent shows what part one perpendicular side of a right triangle is of the other perpendicular; as for instance, in a 30°—60°—right triangle, the side opposite the 30° angle is about  $\frac{1}{2}$  (.5774) of the perpendicular side adjacent to that angle. Hence, if the adjacent side measures one foot, the opposite side is .5774 of a foot. Decimals cannot be easily measured on a steel square, hence .5774 ft. must be reduced to inches and fourths, eighths, or sixteenths, etc., of an inch. .5774 ft. =  $6\frac{15}{16}$  in. =  $6\frac{15}{16}$  in. (approximately).

The steel square forms, with the edge of a board, a right triangle. Therefore, if the blade measure  $6\frac{15}{16}$  in., the tongue 12" or 1', the tongue makes an angle of 30° with the edge of the board. The measurement may be doubled, trebled, etc. From the table it is then evident that if the measurements be taken as  $4\frac{31}{32}$  and 12", the angle will be 22½°, etc. The second column, "approximate values" is given as accurate enough for rough work.

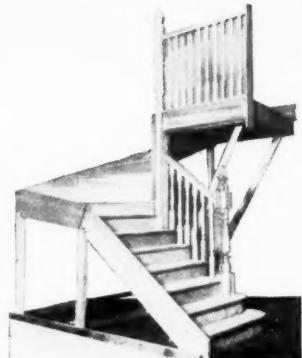




"Bull Nose"



"Bungalow" Stairs



Stairs with Winders

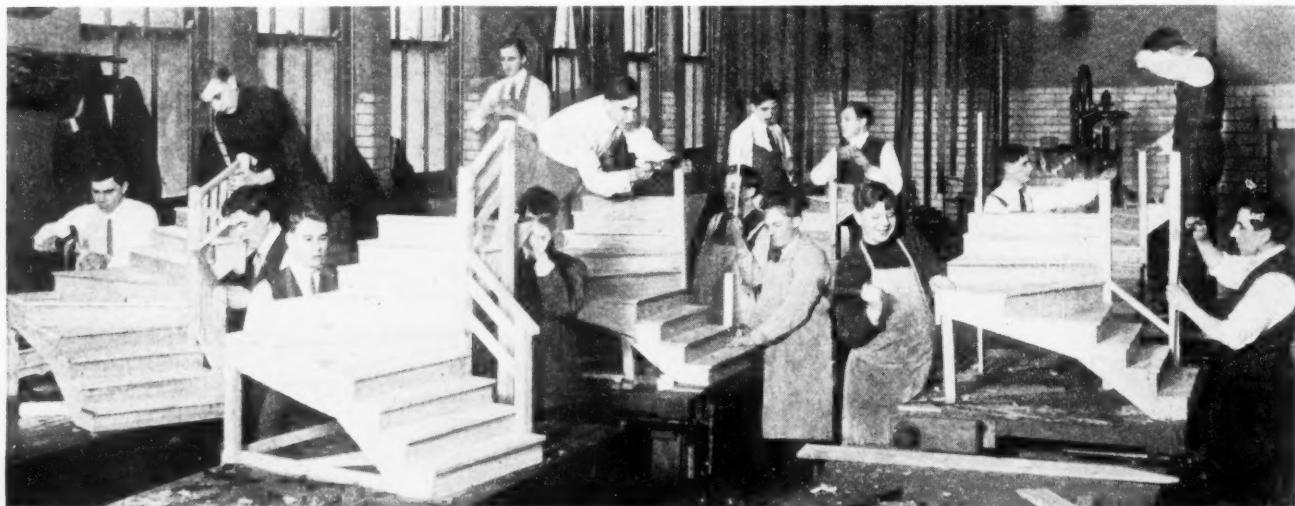
Some of the Stairs Built this Winter at Lane Technical High School by the Carpenter Apprentices

by erecting academic hurdles, keeps from the schools the type of men most needed as instructors in vocational education.

The system of apprenticeship now in vogue for the carpenters is regarded quite generally as an excellent one. One of its best features is the requirement that the apprentice attend school for three months of each year throughout his term of apprenticeship. During this period the apprentice is paid, while in school or on the job, seven dollars a week during the first year; eight and one-half dollars a week during the second; ten dollars during the third; and thirteen dollars during the fourth. If the apprentice is absent from school without good

rough, irresponsible young man who is generally pictured by his detractors as a shirk, we find the average apprentice to be a credit to his trade, to his school and to his country.

**I**N the limited space allowed for this article it is impossible to give a very clear idea of the course of study in all its ramifications, but a brief outline of the more important aspects of the courses in mathematics, English, history, drawing and carpentry will at least indicate the type of work we are attempting to pursue. School sessions begin at nine o'clock in the morning and continue until ten minutes past four in the afternoon with a half hour intermission for lunch. The school day is divided



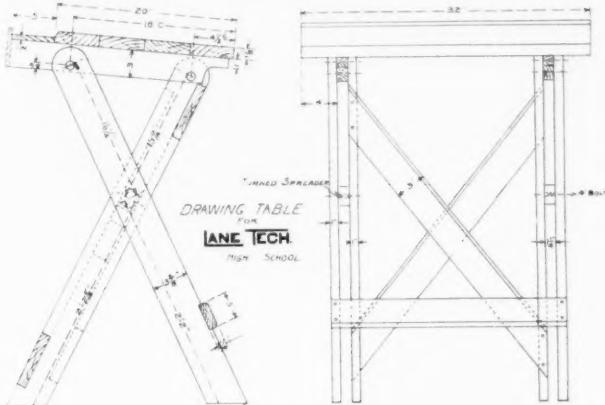
Fourth Year Class of Carpenter Apprentices Building Small Scale Stairs

cause, or on account of suspension for disorder, the time for securing his working card is postponed two days for each day he is absent. The Joint Arbitration Board of the Carpenter Contractors' Association and the Carpenters' Executive Council of Chicago and Cook County from the beginning has earnestly sustained the school authorities in maintaining discipline whenever called upon. The result of this co-operation of the employers, the unions and the Board of Education has been the development of a very superior type of apprentice. Instead of the

into eight recitation periods of fifty minutes each, apportioned as follows: drawing, two periods; shop work in carpentry, two periods; business English, one period; shop mathematics, one period; civics and industrial history, one period; study, one period. Once a week one period is taken from the academic work and given to gymnasium work; once a week a lecture is given on some phase of the work of the building trades by an architect, contractor or journeyman who has special knowledge of his subject or unusual skill in his calling.

**MATHEMATICS.** The course in mathematics is designed to meet the practical needs of the carpenter's apprentice of whatever degree of advancement; to give him accurate conception of commonly used terms, and ability in making necessary computations. The attempt is made to develop the theory which underlies his problem sufficiently to give him the power of generalizing. The following outline though very brief will show the practical nature of the work in mathematics:

The carpenter's rule; the linear table; addition, subtraction, etc., with whole numbers; fractional parts of an inch; drawing of lines to scale. Mathematical reason back of test



Working Drawing of Collapsible Drawing Table

of plane surface by means of the square; areas of straight-lined figures. Use of the "scale"; the decimal system, taking off board feet; comparison with cubic measure. Finding lengths of common, hip and valley rafters, braces, etc.; the rise and run forming legs, rafters or brace; the hypotenuse of right triangles; square root. Measurement of curved lines and surface bounded by them. Obtaining cuts in stair stringer, plate and ridge cuts of common rafters, etc.; similar figures; proportion. Use of steel square in obtaining cuts for stair winders and bevels of any slant; use of tangent table; reduction of decimal to common fractions. Estimating from plans; lists of material; allowance for waste; cost of labor; reasonable profit. Strength of material; solution of formulas.

**ENGLISH.** The course in English includes instruction in spelling from price lists, estimates and carpentry books; penmanship; letters ordering goods; letters of inquiry, of recom-

mendation, of application; punctuation; abbreviation; forms of contracts and specifications; building ordinances of the City of Chicago. Business forms; commercial law subjects; descriptive work in lumbering illustrated by moving pictures; choice of reading matter and good literature; use of library.

#### INDUSTRIAL HISTORY.

The course in industrial history is planned to give the student an idea of the changes in the condition of the laborer from the time of slave labor to the present status of labor under free contract. Attention is given to early slave labor; period of serfdom in England; economic conditions following the Black Death in England; English gilds; conditions in the American colonies under English control; industrial phases of the development of the United States down to the present time; labor unions and organizations of capital; present tendencies.

**DRAWING.** *Third and fourth years.* Framing details of the main parts of the building as sill, floor, joist and studs, plate and rafters, boxed and open cornice, at  $1\frac{1}{2}$  inch scale; full size details of window head, jamb and sill for frame building, followed by section, plan and elevation of the above at  $1\frac{1}{2}$  inch scale. Roof framing of a T-shaped building having a hip and gable roof, with two dormers, at 1 inch scale and all necessary details of hip and valley cuts at  $1\frac{1}{2}$  inch scale; complete plans of a five or six room cottage or bungalow of frame construction consisting of basement, floor and roof plans and side elevation at  $\frac{1}{4}$  inch scale and details of interior trim, sideboard and fireplace at  $1\frac{1}{2}$  inch scale. Plan and elevation of rear outside stairs with winders, suitable for a two story four flat building, showing the complete porch and landing at  $\frac{1}{2}$  inch scale. Plans and elevations of an inside stairs with winder, housed string on one side, at  $\frac{1}{2}$



Drawing Table Completed



Third Year Class of Carpenter Apprentices Building Drafting Tables for Use at the Lane Technical High School

inch scale; details of newel post, balusters, rails and tread at  $1\frac{1}{2}$  inch scale. Section plan and elevation of a mullion window for a brick building at  $1\frac{1}{2}$  inch scale, followed by a complete plan of a four apartment flat building at  $\frac{1}{4}$  inch scale, composed of basement, floor plans, front and side elevations and details of inside trim, fireplace, sideboard, etc., with lessons in figuring loads and strength of material, as called for by the building laws of Chicago.

**CARPENTRY.** In the shop as in the class rooms no attempt is made to do work that the boys might learn to do better on the job. A brief resume of the course will show that the school tries to give facts and experience not usually acquired outside.

Lectures and demonstrations on the use and care of tools; lectures and practice on framing sills, side walls, window and door openings. The use of the steel square; roof framing; cuts for common, jack, hip and valley rafters. Stair building; laying out and cutting open and housed stringers, windows, newels and hand rails.

ONE of the great merits of the apprentice school is that it gives the boy who perhaps was forced to leave school at an early age a confidence in his

school which many of them had rejected by leaving the class room as soon as the law allowed. Imagine their surprise when they found that all the work in the apprentice school was made to bear directly upon the needs of the carpenter and the future contractor. They were astonished to learn for instance that the empirical rules used by the carpenter in handling the steel square are based upon principles of mathematics as laid down in texts on algebra, geometry and trigonometry. Many were astonished to learn that the acute struggles in Chicago at the present time between labor and capital are reproductions of the struggles of the ages as narrated in the industrial histories. School took on a new meaning when the touch of life quickened the facts of mathematics, history and English.

Civics and industrial history was a rather bitter dose for many of the boys until they began to realize its bearing upon labor questions. In treating



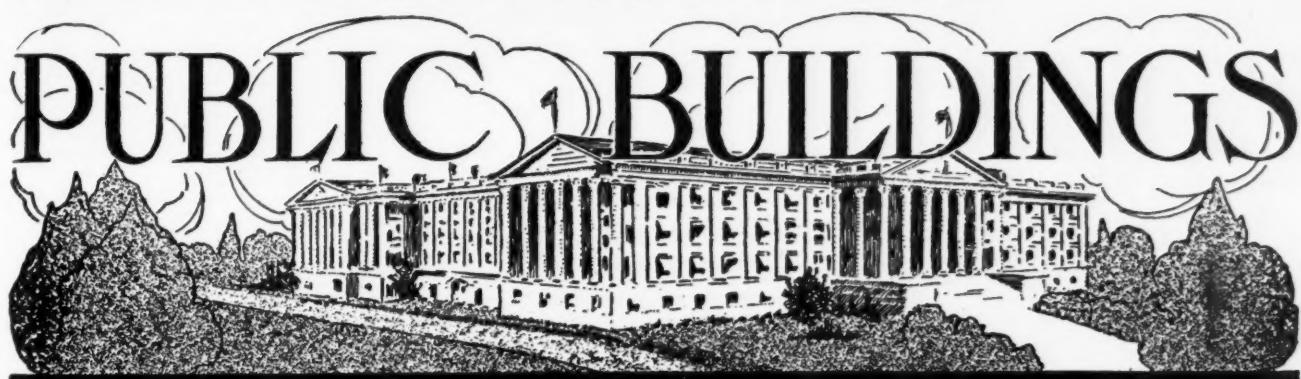
Back to the Job Again—Carpenter Apprentices Leaving Lane Technical High School with Tool Chest They Have Made

ability to interpret a drawing, to lay out work and to make estimates of the cost of material and labor. If he has been out of school for years he has in all probability lost confidence in his power to deal with situations that involve a knowledge of drawing, mathematics or English. Contact with his fellow apprentices in the school for three months a year throughout the four years of his training tends to restore his faith in himself if his faith has justification in fact. His close contact with the realities of life and the appeal of the school to these realities as the court of last resort rather than to the text book of tradition forces him to think.

The skepticism of the apprentices when they first took up the practical work in the technical schools was very noticeable. Many of the boys came to school with the belief that their time and labor in English, mathematics and history would be wasted. They had in mind the old methods of the elementary

the subject of unions, whether of employers or of employees, the school has taken a neutral attitude that has appealed to the sense of fairness of all the boys. The subject is a difficult one to present but by considering both sides impartially and by allowing adherents of both sides to give their opinions freely (for there are often sharp divisions) the essential elements of the controversy are brought to the front in such a way as to enable the apprentices to draw conclusions with intelligence and fairness. The work in civics and history is designed primarily to give a broader outlook upon the conditions of the ages that have resulted in the conditions of today, with the hope that with broader knowledge will come greater tolerance of the rights and opinions of others.

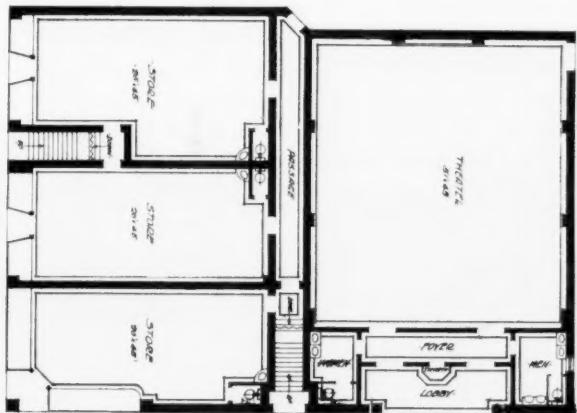
From first to last, stress is put upon the duty of the apprentice to his employer and to his country, as well as to himself.



### Lodge Hall for a Thriving Town

HERE are plans and a general perspective by the Chicago architect, G. W. Ashby, of an admirable building for an enterprising town. The structure is of brick with trimmings of colored terra cotta. The design is simple and dignified. The

first floor offers space for three fine stores and back of these a theatre. No better arrangement of the second floor could be obtained for accommodating lodge hall and banquet room and affording unusual convenience in connection therewith. Entrance to the second floor is provided on each side of the building. This type of building proves popular and rents well.



Main Floor Plan



Second Floor Plan



Modern Design Building with three Stores and Theatre on Main Floors and Lodge Rooms above

# MINNESOTA PRIZE FARMHOUSES

Three Model Designs Chosen In  
Competition by The Minn. State Art Society

## HELPS TO BETTER FARM HOMES

OUR average farmer has been building his barns first and then, if there were some odds and ends of lumber left over, he would slap them together and make it do for the farmhouse. The pioneer spirit has been largely to blame for this; and in the early days when the country was new it was no doubt excusable.

But today there is a change; the farmer and his family are soon to be as well housed as his grain and his cattle. Today is the time of model farmhouses, and those who have given most study to farm social conditions agree that there is nothing so important to proper farm life as neat, attractive and well planned farmhouses.

To the great farming state of Minnesota is now due credit for having worked out in practical application some of the best ideas for moderate cost

model farmhouses. The accompanying illustrations are drawings for model farm homes, the three prize awards made in a recent competition held by the Minnesota State Art Society, which is a Department of the State of Minnesota.

The competition was planned so as to give the Minnesota farmer who has \$3,500 to spend on his home an opportunity to have a residence equal to that of the prosperous city dweller.

These prize plans were drawn with the special purpose of providing for the peculiar needs of the farmer, so individual lighting and heating apparatus is included. One of the conditions was that a separate washroom downstairs be provided for the farmhands, since in most farmhouses the hands "track into" the kitchen and wash at the kitchen sink—usually at mealtime when the housewife is



Perspective View of First Prize Farmhouse; Designed by Hewitt & Brown, Minneapolis

**to COST \$3500**



busy there. It was stipulated also that a separate stairway be provided, leading from the farmhands' washroom to their bedrooms, which should be arranged apart from the other bedrooms so as to give the members of the family privacy. These things have been provided for in all of the plans.

The society also asked that each competitor guarantee that the plans submitted can be carried out at a maximum expense of \$3,500. Estimates have been figured on a basis of fifteen cents to the cubic foot of space, porches to be reckoned at one-fourth their total cubage.

\$500.00 in prizes were awarded—all to Minneapolis architects.

The first award \$200, was made to Hewitt & Brown.

The second prize plan was designed and executed by Joseph McCoy; prize, \$125. The third prize was won by Francis Hafey and David Carlson; award, \$75. Besides these three other minor awards were made.

The competition was planned and arranged by

of the Northwestern National Bank, Minneapolis, and the Minnesota State Art Society.

These plans are to be framed and circulated throughout the state, to the Farmers' Institute, County Fairs, and other important meetings where the plans will prove of actual value to the farmers.

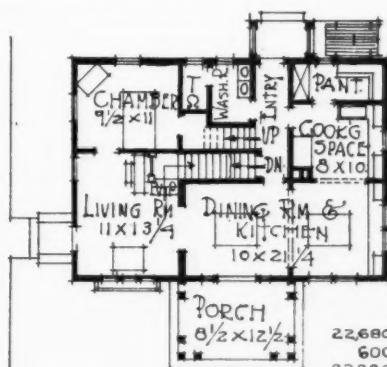
It is planned to construct, in the near future, a number of these model homes, in connection with the University of Minnesota, to serve as a demonstration as to what can be done with a definite amount of money. These homes will be furnished by the students in the Agricultural College, showing how simple furnishing and tasteful decoration can be made to harmonize for the same amount of money as is expended now in many houses for articles which have very little merit. It is thereby hoped to give the farmers, as well as other people, an opportunity to enjoy houses which will have due relation to the beauties of the landscape in Minnesota.

Also, working drawings and specifications will be made soon, and these, with the plans and elevations,



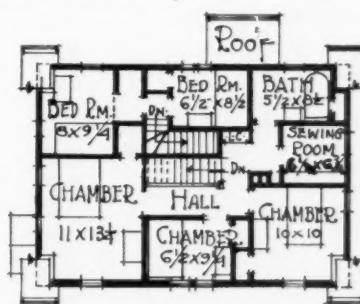
## BASEMENT PLAN

**Arrangement of First Prize Farmhouse—Note Wash Room, Private Stairs and Separate Chamber for Hired Men**



## FIRST FLOOR PLAN

NOTES  
22,680 CUBIC FT. MAIN BUILDING  
600 - - PORCHES (G VBS)  
23,280 - - TOTAL  
COST AT \$5 A CUBIC FT \$3492.00



SECOND FLOOR PLAN

the State Art Society, under the direction of Mr. Maurice I. Flagg, Director; and the contributions for the prize money of \$500 were made by the following people: The Minnesota State Bankers Association, St. Paul Institute, Minneapolis Woman's Club, Jerome Wheeler, President of the Capital Trust Company, Joseph Chapman, Vice-President

tions, will be at the disposal, at a very small fee, for farmers throughout the State. This is only a beginning toward an end which has long been desired in Minnesota, that the natural beauty of the State shall be supplemented by practical homes which combine artistic qualities and at the same time fulfill usefulness.

### Description of Prize Designs

The memorandum accompanying the first-prize drawings called for:

Basement, with walls and floor of concrete.

Frame construction, with metal lath plastered on the outside.

Use of stock lengths of lumber, provided for by centering all bearing partitions above one another.

Roof of shingles, preferably stained.

Brown stain for exterior woodwork; except for blinds, to be painted green.

Sand-finished and tinted interior plaster.

Oak or birch woodwork in living room and dining room, and spruce, pine, or fir in the other rooms, stained to suit the preference of the builder.

Electric lighting, to be supplied from a small dynamo driven by a gasoline engine, and from a storage battery; engine to be connected with shafting to drive pump, air-compressor and laundry machinery.

Warm-air furnace, providing both heat and ventilation.

Concentrated plumbing; sewage disposal by a homemade septic tank.

The estimated cost included all plumbing—for laundry, kitchen, washroom and bathroom, and also wiring for electric lighting; but not the engine, dynamo or storage battery.

The vegetable room is as far as may be from the furnace, and is screened by the stairway so as to prevent its becoming too warm; yet it is convenient to the stairs.

The front entrance to the house is not by way of the porch, but through the door at the end, which opens directly into the living room. The stairs to the second floor lead from this room. Opposite the front door, across the living room, is the dining room. In the drawing this room is marked "Dining Room and Kitchen," though, in fact, the kitchen is back of the dining room—and is marked "Cooking Space." The dining room is 10 by 21½ feet in size, so it is large enough to admit the placing of two tables, one for the family and one for the help, if this should be desired. While the cooking space is not separated by a door from the dining room, it



Other Views of First Prize Farmhouse

The requirements of the competition placed difficulties in the way of the designers. At fifteen cents a cubic foot, \$3,500 would give but 23,333 cubic feet of space. Yet into this space must be crowded nine rooms, besides sewing room and the bathroom on the second floor and the washroom on the first floor, also halls and stairways.

In the first prize design the laundry is almost at the foot of steps leading through a bulkhead door to the drying lawn at the rear of the house—an arrangement that would certainly save steps. The laundry trays are directly under a double window, providing ample light. The engine and dynamo are also placed near windows, and in such a position as to be least in the way.

The furnace, almost at the foot of the interior cellar stairway, is centrally located, providing a good pitch for the warm-air pipes, and the fuel bin is as convenient to the furnace as could be asked.

could be so separated if the builder wished. In summer the porch could be used as a dining room. For social gatherings the whole front of the house could be used as one room.

To the average farmer's wife a kitchen 8 by 10 feet will look very small, but a small kitchen with a place for everything and everything in its place is really a step-saving arrangement. Besides, a fair-sized pantry is really a part of this kitchen. This holds the refrigerator, where it is very easy of access from the kitchen proper and where it may be filled from the back porch without carrying the ice into the house at all. Furthermore, the men of the family and the help do not have to make any use of this kitchen; they wash in the washroom and then pass to the dining room by a special hallway.

In the arrangement of the washroom the architects made a slight departure from the terms of the competition, and for the better. Instead of having



the stairs ascend to the help's quarters from the washroom itself, they made them open from the passage between kitchen and washroom. This would enable one to use the stairs without going through the washroom at all—a very obvious advantage. The washroom is not furnished with a bath, but there is space for one, or would be if very slight modification were made.

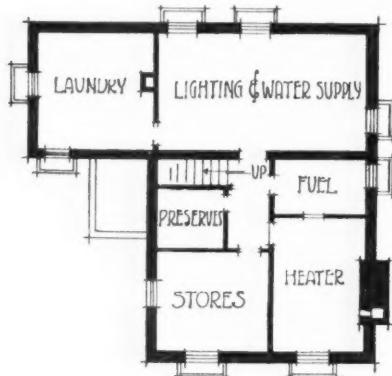
On the second floor the noticeable departure is that of cutting off from the rest of the floor the rooms intended for the help. In many respects this is very desirable, but it has the serious disadvantage of making it necessary for one doing chambermaid



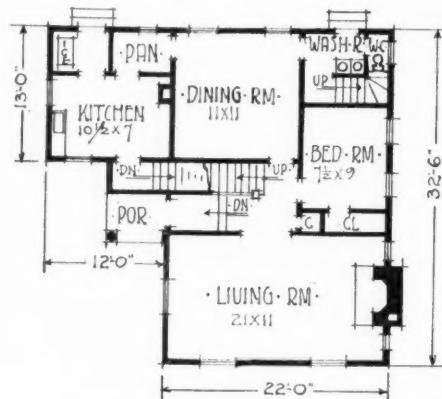
Perspective, Elevations and Plans of Second Price Farmhouse; Designed by Joseph McCoy, Minneapolis

duty to run down and then up stairs again in order to get from one part of the floor to the other.

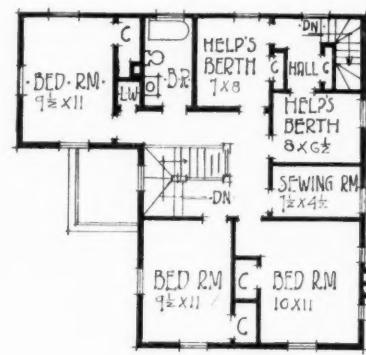
The design awarded second place, is a square hip-roof, cement-plastered farm house. The working end of this is larger than in the first prize house. The kitchen is 12 by 18 feet, very well lighted and supplied with a large china cupboard in addition to a large adjoining pantry which contains the refrigerator arranged for outside icing. The men's room on the first floor is also larger in this design.



BASEMENT PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



Perspective and Floor Plans of Third Prize Farmhouse; Designed by Francis Hafey and David Carlson, Minneapolis.

In this, as in the one already described, the two bedrooms for the farm help floor are entirely separated from the rest of the second floor. In the third prize design, this is not the case; and it is probable that a good many would prefer the communicating door so that these rooms could be taken care of without going clear down stairs and then climbing up again.

In this second prize design, the sun parlor or screened porch, opening from the living room, is a most desirable feature. The outside of this farmhouse has an appearance of roomy hospitality and comfort.

The farm house awarded third place is in the form of an L. A study of the floor plan diagrams will bring to light some first rate ideas for farmhouse arrangement. The cubage of this house shows a total cubical contents of 22,625 cubic feet.

This figured at fifteen cents per cubic foot, brings the cost within the \$3,500 limit.

It is hoped that both the farmers themselves and the rural carpenters and builders, not only in the state of Minnesota, but throughout all of her sister states, will study these prize-winning farmhouse designs and receive inspiration and practical help from them.

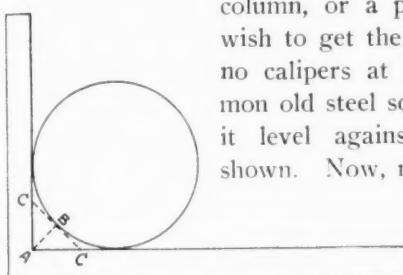
## More Shop Kinks

HELPFUL IDEAS AND SUGGESTIONS FOR CARPENTERS, CABINET MAKERS AND MACHINE WOODWORKERS  
By Wm. C. Jasbury

**TO FIND DIAMETER.** Recently I stumbled across a trick with the steel square which I think is original, though it may have been known and used before the Egyptian pyramids were built. Nevertheless it is new to me and that settles it as far as I am concerned. Here it is: Suppose we have a column, or a pillar, of which we

wish to get the diameter and have no calipers at hand, only a common old steel square, and we place it level against the column, as shown. Now, measure distance as

from A to B, then lay the square on a board, or piece of paper as

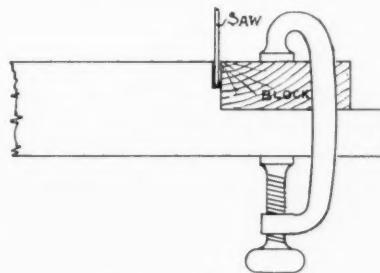


Getting Diameter with Steel Square

shown in the illustration. A B being the same distance as in the first instance, at B draw a line at right angles to A B, as shown by C C. Now then, the combined lengths of A B and A C will be the radius of the column.

**ONE FOR GERMANY.** Recently I saw a German cabinet maker pull off a good one.

He was trying to ease a joint about the width of a saw blade. At first he tried to cut down the joint but only having one side to keep his saw



Way to Saw an Edge

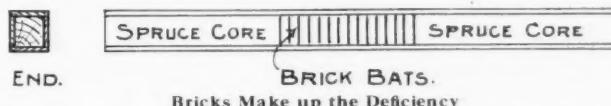
against, the saw would run off, thereby making a ragged cut. He then clamped a block against the joint and cut between the block and the piece and the trick was done.

**TO MEASURE UP WITH A TAPE LINE.** Some estimators take off quantities of picture moulding, base mouldings, etc., from a set of plans with an ordinary tape line. The plans being usually drawn to the  $\frac{1}{4}$  inch, they lay the edge of the tape on the plan, and say the room is 12 feet wide, take 12 quarters on the tape, then measure another side, setting off as many more quarters as there are in the lengths, thus measured, and after going over all of the plan the total length in quarters will represent the number of feet required and that without having to add up a lot of figures at the finish.

**THIS JOB WAS BATTY.** I once came across a job where there were eleven porch columns boxed up 8 by 8 inches with a solid 6 by 6-inch spruce core inside 8 feet long. In making out the yard order, the foreman on the job gave it this way:

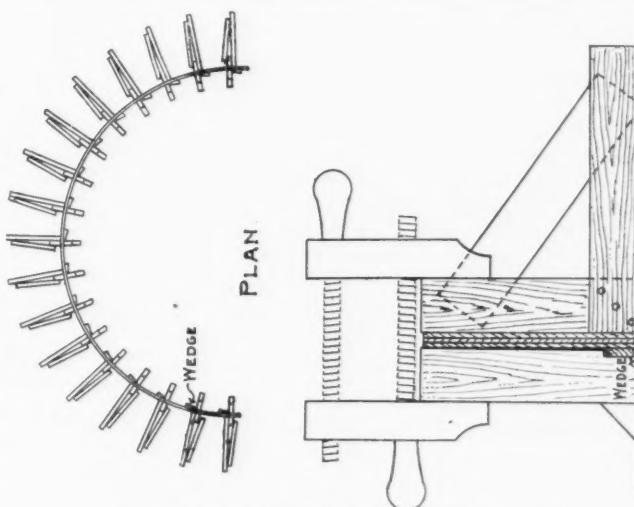
22 pcs.  $\frac{7}{8}$  x 8'-0"-No. 1 Y. P.  
22 pcs.  $\frac{7}{8}$  x 6 $\frac{1}{4}$ -8'-0" No. 1 Y. P.  
11 pcs. 6 x 6'-0" spruce.

When the material arrived on the job he saw his mistake of having the core 6 feet long instead of 8 feet. The columns had to carry a heavy load, so



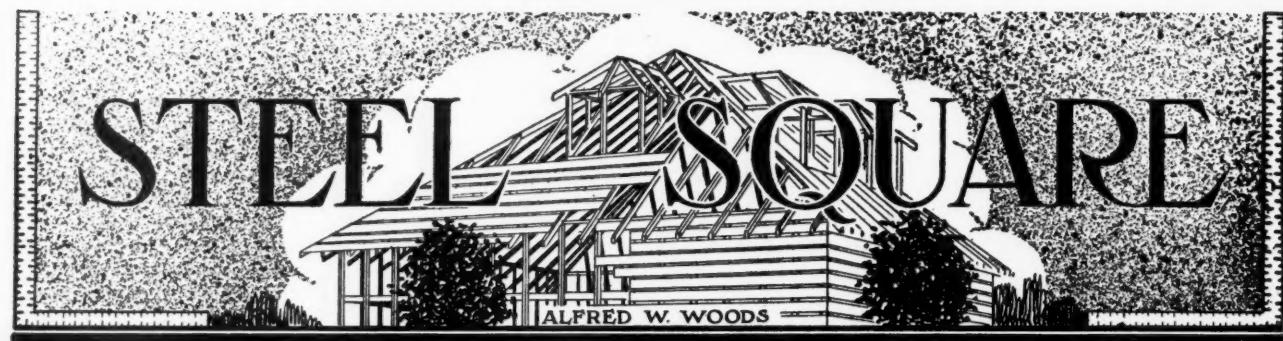
he cut the 6 by 6 posts in two pieces and placed the ends so that they would come out flush with the box ends and then filled the middle space with brick bats. Now, this man was all right as far as the job goes by getting them up and nailed fast before the architect or owner got wise. This only goes to show how some jobs are faked and finally come out all right.

**TO FORM A CIRCLE SOFFIT.** Recently I had a circle soffit,  $\frac{7}{8}$  inch thick, 16 inches wide, 14 feet long, with a radius of 8 feet to get out. To bend this so that it would stay in shape until set up in place, was a good trick. Here is the how. I took three pieces of  $\frac{1}{4}$ -inch (full) cypress 16 inches wide and 15 feet long. I nailed braces on the floor every foot apart with the proper sweep; then set the three pieces against the braces on edge; then took pieces of  $\frac{1}{2}$  by 2 by 16 inches and set against the face of the board, as shown, and opposite the brace I nailed to the floor. Then I applied hand



Method of Gluing and Clamping Circle Soffit.

screws. At the bottom I nailed a block against the upright pieces and drove wedges between these upright pieces and the veneer to make the joint come up tight at floor. I used good glue between the boards and then gave it time to dry out. This is what some of the older mechanics call laminating. It makes a good job.



## Framing the Hip Under Different Conditions

DIRECTIONS CLEARLY EXPLAINED FOR USING THE STEEL SQUARE FOR THIS IMPORTANT WORK

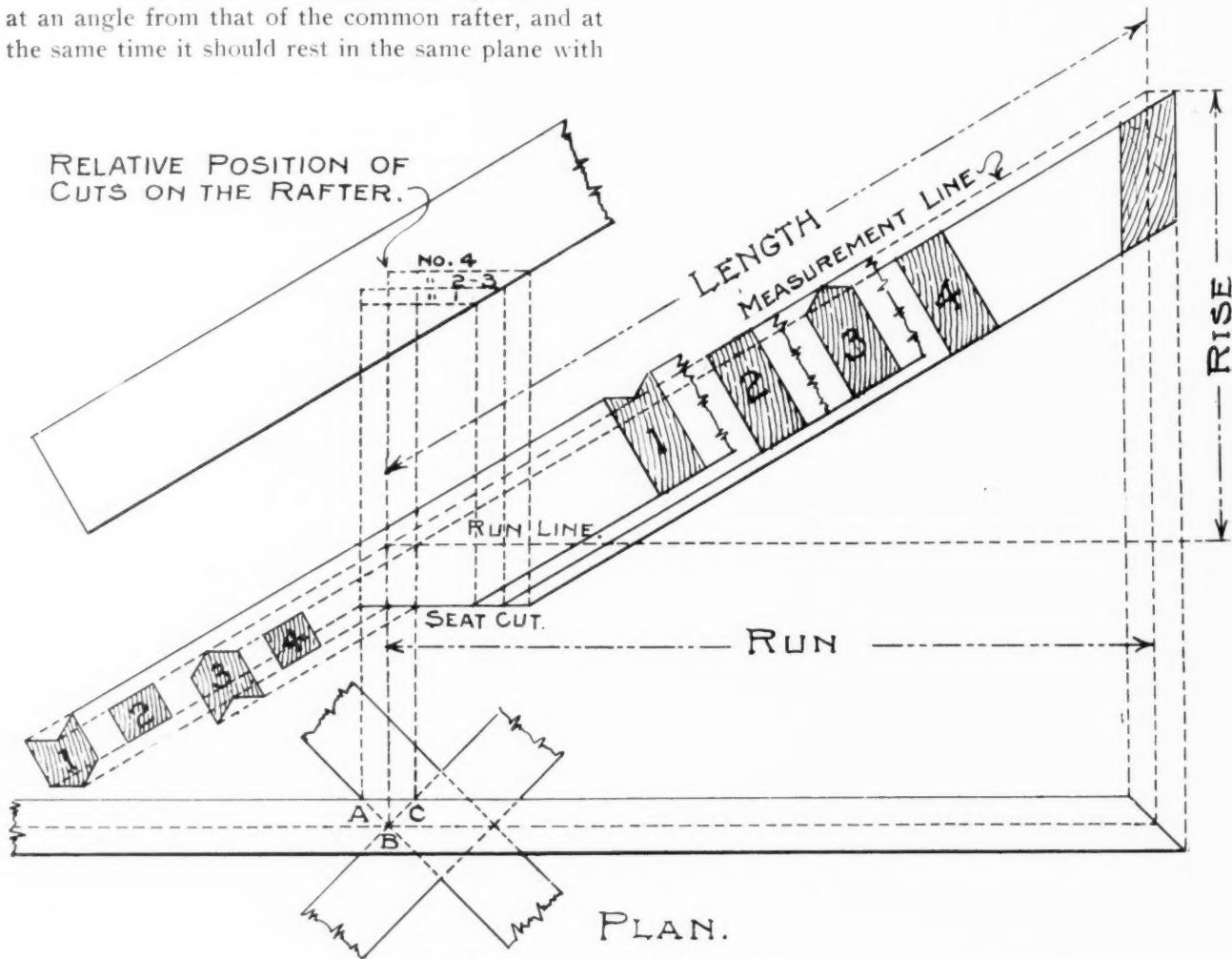
**B**Y request of one of the readers, we will take for our subject this month, the framing of the hip and valley, backed and unbacked and how to arrive at the proper cuts, so that the rafter will be in the proper plane when set up in the roof.

This is a vexing little problem, which is more often solved wrong than right. We have written on this before, but as it furnishes a good subject and as we trust will be new to a good many, will try and see what we can do in the way of illustrating and simplifying the subject.

The trouble lies in the fact that the hip must rest at an angle from that of the common rafter, and at the same time it should rest in the same plane with

it. The measurement line for the hip or valley is on the center of its back; and as the seat cut lines must be laid off on the side of the rafters, which is one-half of the hip's thickness from where the reckoning or run line of the hip is located, it furnishes the problem to know just how deep the seat cut should be made to come just right under the different conditions.

Now, it does not matter what the pitch of the common rafter may have, but the plumb line from the outer edge of the plate to bring the hip or valley in the plane of the roof boards, is the ques-



Explaining the Measurements and Cuts of Hip Rafters

tion; where this line should be placed on the side of the rafter to bring the cut in the right plane. If the hip or valley is backed, then the whole surface of the back will be in the plane of the roof boards; but if they are not backed, then only the edges of the hip should come in the plane, thereby leaving a hollow space over its top as the boards will rest only on its edges. Therefore, in that case its true reckoning line for its length is clear off of the rafter and should be reckoned with accordingly.

In the case of the unbacked valley, it should be in the plane above referred to, only at a line along the center of its back, thereby leaving a hollow space at either side of the back. This is not good construction, especially in heavy roofs; better take two rafters and back the top of each all one way, right and left and then spike them together. This will form an excellent nailing space and will make a good solid job.

We will now conclude by referring to the illustration and let it do most of the explaining. The numbers on the sections represent the conditions as follows:

No. 1 represents the backed, or rather grooved valley,

No. 2 the unbacked valley,

No. 3 the backed hip, and

No. 4 the unbacked hip.

Like numbers shown on the sections through the tail correspond with the above rafters. Here they are piled upon top of one another in reference to the true measurement line which, it should be noted, catches the top or center line of the first three rafters. Trace this line on down to where it intersects the run line, thence down to the plane and it will be found to intersect at the corner of the plate, as at B in the plan.

Note the three vertical lines A, B, and C running from the plan to the run line. A represents where the side lines of the valley pass over the edge of the plate. B represents the center line of the rafters as before mentioned and C where the side lines of the hip pass over the edge of the plate. These lines govern the rafters under the different conditions, as shown in the elevation. Leaving the plan, they are half the thickness of the rafter apart, but that only happens so in the case of a square cornered building. The figures that give the miter for the corner on which the rafter rests will also give the distance apart these three lines should be in proportion to one-half of the hip's thickness. Thus, 12 and 12 ( $12/12$ ) give the miter for the square corner and as  $12/12$  represents the whole thing, it represents all of one-half the hip's thickness.

In the case of the octagon, 5 and 12 give the miter, then  $5/12$  of one-half of the hip's thickness,

will be the required distance apart of the lines, A, B, and C.

Now, in making the seat cut for No. 1 (backed valley) the cut should extend in to the line A at the sides of the rafter and to B at the center.

For No. 2 (unbacked valley) the cut should extend in to A straight across.

For No. 3 (backed hip) the cut should extend in to C at the sides and to B at the center.

For No. 4 (unbacked hip) the cut should extend in to B straight across.

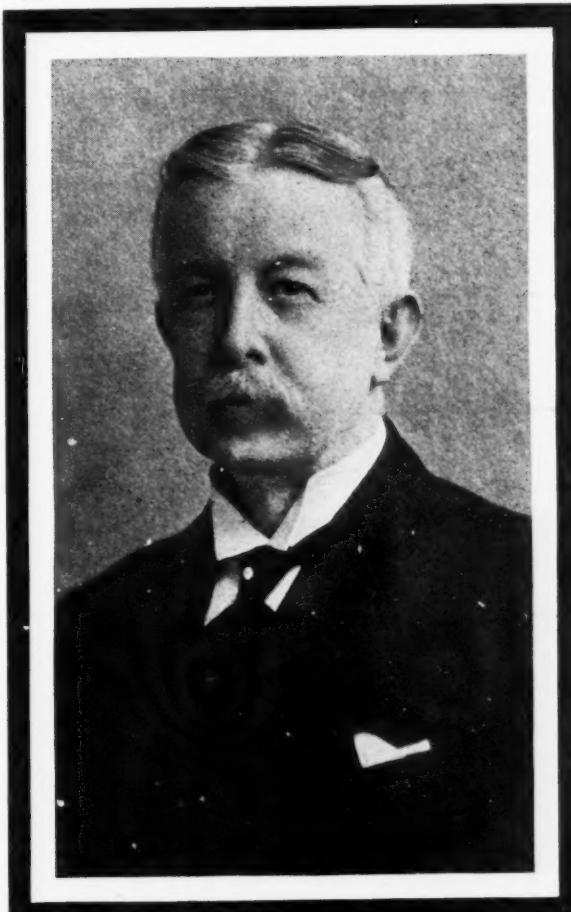
The parallel distance between the run line and seat cut remains the same distance apart, as shown in the lower elevation, but the relative position of the seat cut on the side of the rafter is shown in the upper elevation.

The foregoing, of course, applies to roofs of even pitches. In the following article, next month, we will take up the subject again, dealing with unequal pitches.



### Prominent Hardware Man Dies

Charles H. Parsons, First Vice-President of the American Hardware Corporation, died April 13th, of pneumonia, at his home in New Britain, Conn., aged 66 years. His achievements as director of sales for P. & F. Corbin Co., in which concern he rose from the lowest position to the Presidency, and as director of sales for the Corporation, have been notable. His death is mourned by thousands of associates and personal friends.



Charles H. Parsons



*In this issue will be found several of the Honorable Mention Designs from Our Big Prize Competition. Next month and in every issue thereafter others will be illustrated until all have been presented. All of these Honorable Mention Awards are of very high quality; it is difficult to choose between them. Some will even consider many of them more praiseworthy than the Prize Winners. They show the uniform high quality of the work the American Carpenter and Builder readers are doing.*

## Comfortable Residence at Highland, Mich.

HOUSE 34 FEET SQUARE WITH COMBINATION HIP, GAMBREL AND GABLE ROOF

Planned and Built by Albert Gonне, Highland, Mich.

Editor AMERICAN CARPENTER AND BUILDER:

I AM sending you photos and drawings of a house I planned, designed and built for Mr. and Mrs. C. L. Treat of this place. A large amount of the material for the frame and sheathing is white cork pine obtained from their old house and a large school house, both of which I razed for them. These two buildings furnished the 8 by 8-inch sills, 2 by 10-inch and 2 by 8-inch joists, 2 by 6-inch ceiling joists and rafters and partition studding.

The house is 34 by 34 feet with an addition on the rear containing laundry tubs, lavatory, room for milk separator and outside cellar stairs, the latter being built of cement.

The studding are 18 feet long making two full stories; while the roof, being a combination of hipped, gambrel and gable roofs, affords a large room 19 feet square in the attic. This room opens on the balcony by means of casement windows and makes a fine play room and is valuable for many purposes.

The outside rafters cover  $7\frac{1}{2}$  feet and are cut 14 inch rise to 1 foot run; the top rafters are cut 7-inch rise to 1 foot run. The floor plans show the location of the rooms which are well planned for convenience and pleasant outlooks, the living and dining rooms being in front, while from the kitchen is obtained a fine view of the fields and lake, also the road and the farm buildings.



Substantial Nine-Room Dwelling Planned and built by Albert Gonне, Highland, Mich.

In the living room is the fireplace with its artistic mantle and on the wide stool of the projecting window to the east are kept a few choice plants. The small projecting window on the stair landing is also used for plants, the running vines of which are gracefully draped around the walls.

The photo of the dining room shows part of the



#### HONORABLE MENTION DESIGNS

is finished with southern pine and the first floor is oak with oak floor except the kitchen, which has maple floor and is finished with southern pine and cherry. All the panels in cupboards and cabinet doors and all drawer fronts are cherry (grown at home) and the effect is very pleasing, making the kitchen bright and cheerful. All the floors in the house are finished with floor wax.



Interior Arrangement of Albert Gonne House

fine window seat in the projecting bay and the cupboards. The small door near the serving table opens to the work table in the kitchen and saves many steps when cleaning the dining table.

The oak serving table shown in the picture is my own hand work as is also the wardrobe in central hall. I also made all the oak transom sash and oak casement sash in bathroom by hand. The second floor



View of Dining Room

I wish to especially mention the porch which is 10 by 30 feet with cement floor. Notice the arched spaces with keystone effect. I made the form for the cement spindles and the owner made the spindles; then I put up a form for the cement rail so that he could set the spindles and make the rail at the same time. The rail is 4 by 8 inches and is reinforced with iron.

ALBERT GONNE, Highland, Mich.

## Well Designed \$4500 Dwelling at Athens, Mich.

RAPID RISE IN ARCHITECTURE THROUGH HOME STUDY

#### A Glance at the Work of

### EDWARD CUTHBERT CONTRACTOR AND BUILDER

ALL ORDERS RECEIVE PROMPT ATTENTION  
FREE ESTIMATES CHEERFULLY FURNISHED

FULTON, MICH.

He Has Reached Independent Position through  
Home Study

have a more than satisfied customer. The way I manage this is to give him his money's worth, and more than he expects in the way of design, workmanship and every detail.

The plans and designs which I build are my original ideas; and I have never built a house from plans which

someone else had made. I find by getting the ideas of the people who intend to build, and drafting them into a complete set of working plans, and uniting them with new and modern ideas, and being particularly careful to observe neatness and architectural beauty I am invariably successful in getting the best work in this locality and usually at a higher figure than any competitor.

To fully realize the beauty and convenience of this house, one must see it, and I wish you could, for it is certainly a pleasure to visit these people and know the degree of satisfaction and happiness this house affords them. Mr. Waterman has told me several times that if he were to build it over he would not change it in any particular inside or outside.

By the way, my experience has been always to

I avoid getting into a rut,—never under any circumstances copy after someone else or even my own plans; for in these modern times people want something different from their neighbors.

I seldom ever build the same plan twice. On the best houses I design my own moulding, style of finish, etc.

Considering the briefness of my experience as a contractor and builder, which covers a period of about



#### HONORABLE MENTION DESIGNS

eight years, I haven't done so poorly. I have worked my way up by the help of the best books on building subjects, including "Radford's Cyclopedia of Construction" (which should be in every builder's library), also a few lessons by correspondence in architectural drafting, of Mr. F. W. Dobe, chief draftsman of Engineers' Equipment Co. I feel well satisfied with my success.

The material used in this house is as follows: The



**Beautifully Designed 9-Room Residence Planned and Built by Edward Cuthbert, Fulton, Mich.**



**Interior Arrangement of Cuthbert Dwelling**

center partition in basement is of 2 by 6-inch No. 1 hemlock; the balance of basement partitions are of 2 by 4-inch No. 1 hemlock, all sheathed with sheet-lath and plastered with the Grand Rapids Plaster Company's patent plaster, including foundation walls in basement. The foundation is of concrete to grade line and cement blocks above grade. Outside walls are sheathed with No. 1 Y. P. shiplap nailed, with three 10d nails to each studding. This is covered with black Neponset building paper, manufactured by F. W. Bird and Son, East Walpole, Mass. This is an absolutely wind and waterproof paper, and the kind I always recommend. I always place this paper under window frames and corner boards, thus avoiding all possibility of wind or moisture getting through.

This house is then sided with No. 1 cypress lap siding. The porches are all floored with 1 by 4-inch clear cypress laid in fresh white lead and oil.

The inside arrangement deserves a careful study of floor plans. I wish to say briefly that all lavatories

are supplied with hot and cold soft water and cold city water; and are of the best porcelain ware.

The lower rooms are cased in plain red oak and finished with three coats of Berry Brothers' best varnish over a golden oak stain. The upper rooms are cased with Y. P.; front chamber and bath being finished in white enamel, balance of chamber finished with three coats of best varnish, natural.

Outside doors are full length bevel plate. Inside



#### HONORABLE MENTION DESIGNS

doors are of the two-panel design; the one leading to bedroom has full length bevel mirror on living room side.

The heating plant is a hot air furnace made at Homer, Mich., and is of the single register kind, and is a very economical and satisfactory system.

Wishing the editor and craft a successful and prosperous year.

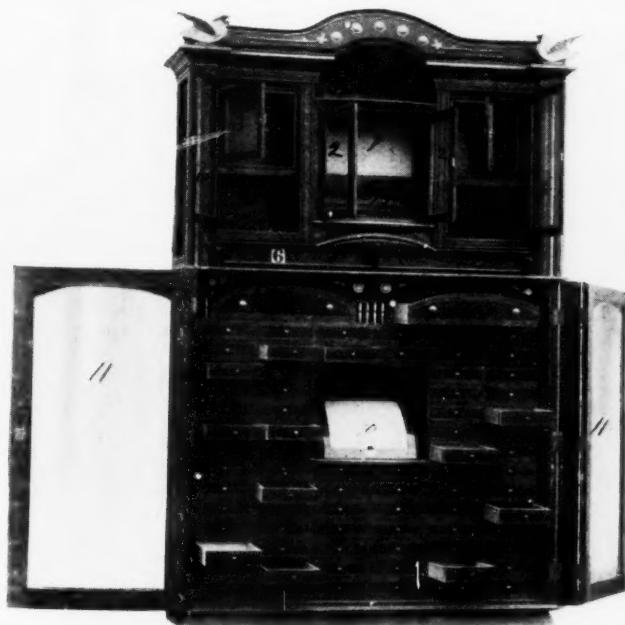
EDWARD CUTHBERT,  
Contractor and Builder,  
Fulton, Mich.

## Design for Doctor's or Jeweler's Cabinet

**Planned and Built by Richard Barr, Ravine, Pa.**

Editor AMERICAN CARPENTER AND BUILDER:

HERE is a photo of cabinet I have planned and built. You will find all parts numbered. In dimensions, this cabinet is most appropriate for doctors or jewelers. The parts are as follows:  
No. 1—Memorial department, 17½ wide by 16 inches high.  
No. 2—Glass doors, 7¾ by 13½ inches.  
No. 3—Secret department, 10 by 10-inch glass doors.  
No. 4—Secret department, 12½ by 12½ inches.  
No. 5—Small book case, 12½ by 12½ inches.



**Elaborate Case Designed and Executed by Richard Barr**

- No. 6—Glass doors, 11½ by 20 inches.
- No. 7—Arch, 17 by 7¾ inches.
- No. 8—Board, 3¼ by 43 by 6 inches high in center with a catch at each end.
- No. 9—Inscription department opening, 14 by 14 by 10½".
- No. 10—Bent glass, 12 by 12 inches.
- No. 11—Big doors, 18 inches by 3 feet with 3-inch casing on hinges as well as door.
- No. 12—Six steps, ¾-inch rise with a 1-inch tread.
- No. 13—Pulpit with a quartered circle extension.
- No. 14—Large drawers, 10 by 4½ inches, in center.

The cabinet is over all 7 feet high by 4 feet 6 inches wide; the depth of the upper part is 11 inches and the lower part 14 inches. The pigeons on upper corners can be reversed or placed to any position to suit the

appearance in whatever locality the cabinet stands.

I hope and trust the same is satisfactory and would really like to see this in the AMERICAN CARPENTER AND BUILDER.

RICHARD BARR,

#### **Beautiful Hand Made Altar** *Executed by Alfred Sanders*

Editor AMERICAN CARPENTER AND BUILDER:

I am sending you a photo of an altar that I made for the German Lutheran Church at Hector, Minn.

The whole thing is made by hand. The balusters in the altar rail are turned out by hand with a foot power lathe. I painted it white, and decorated with gold trimming.

ALFRED SANDERS,  
Carpenter and Builder, Hector, Minn.



**Finely Wrought Altar in German Lutheran Church,  
Done by Alfred Sanders**



## How to Make a "Grandfather's" Clock

PLEASING DESIGN WITH HAMMERED COPPER FACE

**Designed and Executed by P. H. Herron,**

of the Northern Normal and Industrial School, Aberdeen, So. Dak.

Editor AMERICAN CARPENTER AND BUILDER:

FOR one who likes the simple in furniture design and has already a number of pieces of craftsman or Mission furniture, the hall clock shown in the drawings would be a pleasing addition.

In designing this clock an effort has been made to refine as far as possible and to keep from the overheaviness so often seen in much of our mission furniture.

The best results may be obtained by using quarter-sawed oak.

There is nothing difficult about the construction and in certain places, such as the vertical slats marked M<sub>1</sub>, M<sub>2</sub>, M<sub>3</sub>, etc., connecting with the horizontal pieces marked "E," "K," "L," "G," etc., mortise and tenon or half lap joints may be used.

The pieces marked W<sub>1</sub>, W<sub>2</sub>, etc., may be held in place with glue alone but the addition of dowel pins



necessary as a careful study of the drawing will give the necessary information.

As indicated on the drawing, the dial is 15 inches square. This was found to be the usual dimension of hall clock dials. For the dial a piece of 16 gauge copper was used. The sheet of copper 17 inches square was placed upon a 1 1/4 white pine board holding it in place with a screw in each corner (see Fig. I).

The design and numbers as shown in figure II were drawn on tracing paper. This was then glued onto the sheet of copper face down so that the design and numbers were reversed to the worker. After allowing the glue to dry the operation as shown in figure I was begun with a small nail set.

This is known as repoussé work. Each number and part of the design is sunk into the pine board. An ordinary nail set was used to do this although a chasing tool and a repoussé tool would be better.

After the numbers and design are made deep enough the copper is removed from the block. You will find the numbers and the design standing out prominently as shown in figure II.

The next operation is to hammer the smooth parts of the dial with a small ball pion hammer after which

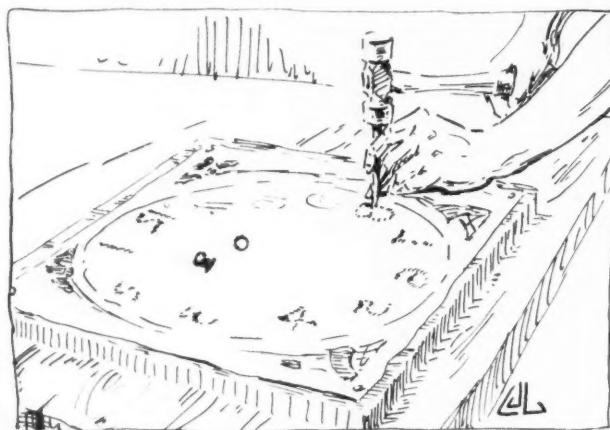


FIGURE I  
Repousse Work on Copper Clock Face

will give additional strength.

The four pieces marked "A," "B," "C," "D," are planed to size first. Next the pieces marked "E," "F," "L," "T," etc. These are then mortised in the four pieces "A," "B," "C," "D." All the stock is planed to dimension before gluing up. The front and back are glued up first and the mortise and tenon joints draw-bored.

The large panel marked "Z" should be rabbeted into the pieces marked "C," "D," "J," "F," and a loose fit is the safest, as there is a tendency to split the panel if the fit is too tight. Farther comment in regard to the construction of the wood parts is not

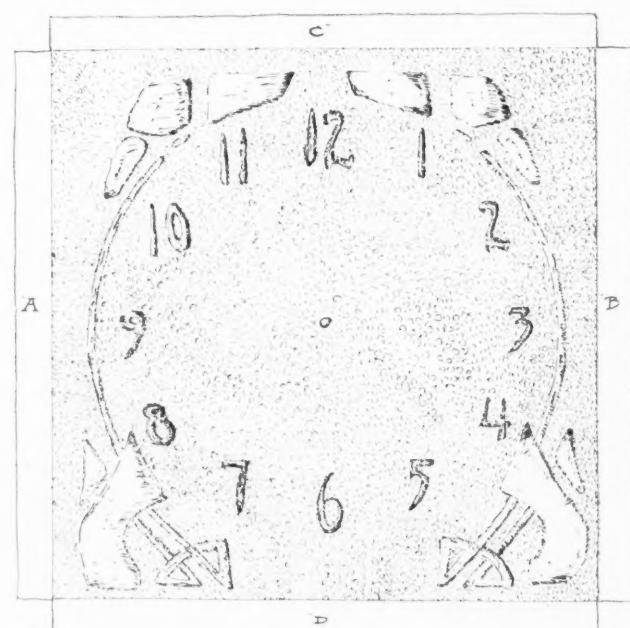


FIGURE II.  
Sheet Copper Clock Face Completed

1913]



## PRIZE WINNING PLANNED AND BUILT STRUCTURES BY OUR READERS

57

color may be given to the copper by holding over a gas flame. When the copper cools the numbers may be polished with emery and then shellaced. This keeps the numbers from changing color. The projections marked "A," "B," "C," "D," shown in figure 11 are then bent at right angles to the dial. These are used to fasten the dial to the pieces marked "A," "B," "R," "I," on working drawing.

In purchasing the clock works a set of brass letters are included. These may be worked into a simple dial by making a board the size of the dial and then covering with a sheet of hammered 26 gauge copper upon which is fastened the numbers.

The clock works are either fastened to the back of the dial or attached to a small shelf fastened in the back.

A door may be constructed and placed in the back of the frame but this is not absolutely necessary.

The works may be purchased from any large clock firm and retail for eight dollars and a half upwards.

Both dials were made in the way I have described. The copper one shown in the sketches and in the photograph being the richest.

For finishing a filler first was used, then a brown stain after which three applications of furniture wax completed the job.

PERCY H. HERON.

### Fast Work on Big Tipple

To the Editor:

Harsthorne, Okla.

You will find enclosed photo of forty slope mine

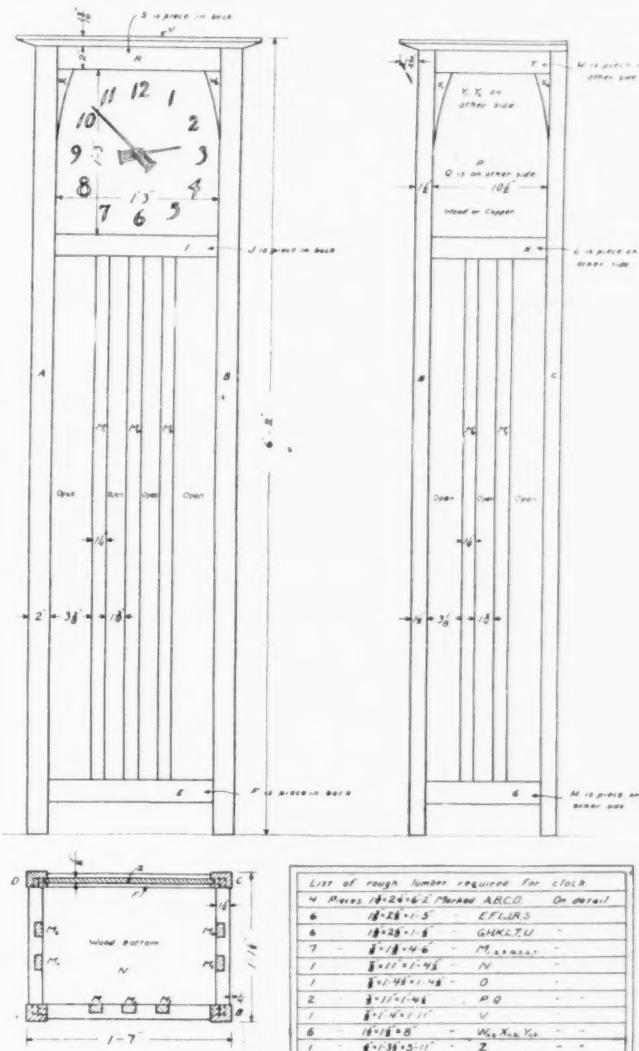


Completed Clock

### HONORABLE MENTION DESIGNS

I, with a force of four bridge carpenters and three mine carpenters, and five helpers, erected the new tipple in just twenty-one days, using eighty-five thousand feet of lumber. Most of the lumber used was standing in trees, twenty-five miles away at time of fire, was hauled by teams.

In addition to building tipple and included in the twenty-one days, we—the same force—erected a rock



Working Drawings and Stock Bill for Clock

incline dump with twelve bents, 15-foot centers, with a pitch of 25 degrees, with 8,000 feet of lumber. We set the Phillips cross-over dump and a pair of track scales and put in all chutes in running order.

The tipple is 408 feet long with an average height of 30 feet. Two hundred feet was equipped with three tracks, one hoisting, one load and one empty track.

I owe a great deal of my success as a building contractor to the AMERICAN CARPENTER AND BUILDER, and I would advise all carpenters and builders to subscribe for this wonderful time-saving, money-making magazine.

W. R. SCHMIEDING.

Big Tipple of Rock Island Coal Mining Co. at Gowen, Okla.



**W**HILE the last month has been a busy one for me, it has not been particularly interesting. Harriet has kept me busy fixing up the window screens and doing the thousand and one other repair jobs that a woman always finds for a fellow just as the "spring fever" begins to become acute. Even Lorna hasn't been quite as usual, and Jimmie hasn't been around at all of an evening. If I hadn't run out of tacks and had to go down town after some (which took me all day), I'd not have gotten to see Jimmie at all.

When I did get down to the shop Jimmie had already gotten his jigs fixed up for making V-shaped troughs, as we had planned; and had made a handy device of his own which merits description. I noticed, by the way, that he had a slight contusion on the side of his face; and, though he didn't tell me how he got it, presume that he has had one of those warnings against carelessness which a buzz-saw is bound to give one occasionally. This is "all in a day's work" but I was struck, later in the day, by a fresh proof that accidents seem to occur in streaks. On my way home I caught a glimpse of the young attorney as he turned a corner ahead of me, and he looked as though he had been busting a powder trust and had cut the fuse too short. I suppose that the business of attorneys is apt to take them into some dangerous places and that they too must learn not to "monkey with buzz-saws."

#### Roller Trestle Support for Saw Table

But speaking of Jimmie's contrivance, it was a trestle for holding up the end of long stock as it runs off the saw table; a device which I think will also prove very serviceable in moving long and heavy stock even when it is not being sawed. He first turned, on his buzz-saw, a roller about four inches in diameter by two feet long, with half inch steel gudgeons in the ends. He then took a couple of pieces of two by four about four and a half feet

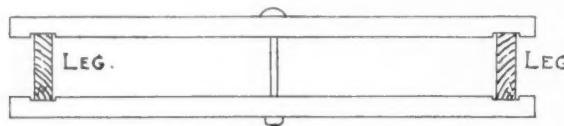


FIG. 1.  
Brace Between Roller Legs

## Watching Jimmie

### Part VI

A DARK TIME FOR JIMMIE. ILLUMINATED BY SOME NEW AND GOOD WOODWORKING IDEAS

By W. D. Graves

long, rounded one end of each and bored a hole in each to fit his roller gudgeons. Placing the roller between them he secured them together, parallel, by nailing across them two pieces of ten inch board. Close up to the roller he pivotally bolted to the inside of each of these a shorter leg of one by three inch stuff. In the meantime he had gotten out two pieces of white oak of board thickness and a couple of inches wide by twenty-six inches long, and cut a dado,  $1\frac{1}{2}$  inch by  $\frac{1}{4}$  inch across them an inch from each end. These were placed across the last mentioned legs, opposite each other, and held

"spring taut" by a bolt through the middle, as shown in plan and section in Fig. 1. A piece of one and a half inch belting then had one end fastened to this cross piece — the bolt went through it — while the other

end was screwed onto the lower edge of the boards which crossed the two larger legs, all as shown in perspective in Fig. 2.

To raise or lower the roller all he has to do is to slide the cross piece down or up the legs; any inequality in the floor or ground being provided for by leaving one end higher or lower than the other. The dados were made wide so that this might be done. The boards across the larger legs were placed close up to the roller so that, in case the end of the stock sagged a trifle it would slide up on them. He will find that thin stock will so sag; and, in order to make the thing work smoothly in all cases, will doubtless cover the boards with thin sheet iron.

#### Working Deep Curved Grooves with Buzz Saw

When Jimmie had his V gutters sawed out I showed him a little trick with the saw which I have never found of much practical value but which is well worth knowing for its occasional usefulness. This was the method of cutting a deep groove of curved outline, which may be approximately semi-

# WOODWORKERS PAY

circular. To do it, first set the table at such height that the saw will project above it as far as the desired depth of the groove. Take two steel squares—any kind of straight edges will do but the squares are handier because easier to keep parallel—and place them flat on the table relatively as shown in Fig. 3. Swing them, keeping the arms parallel and respectively touching the front and back of the saw, until the distance between them equals the required width of the groove. A mark along the edge, A, of one of the squares will give the angle at which a gage, or fence, must be set in order to do the work. Fasten this gage, which may be any straight-edged piece of board, back from

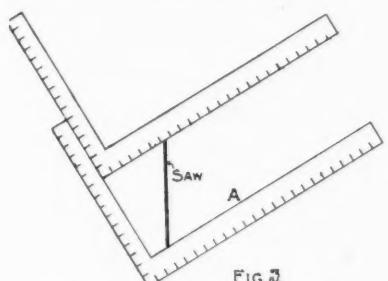


FIG. 3  
Steel Squares Show Where to Set the Fence

the mark a distance equal to that which the finished groove is to be from the work edge of the stock. Now raise the table till the saw projects above it an eighth of an inch or less, and run the stock over. Lower the table an eighth of an inch and run again; so continuing till the desired depth is attained.

I say an eighth of an inch merely for the sake of speaking specifically, and not at all because that will always be just the proper depth for each cut. As a matter of fact it generally isn't; though it is probably about the average. The depth to which one may cut each time depends upon the size of the saw, the size, form and condition of the teeth, the angle at which the stock is run, and the sort of lumber used. It must be determined by judgement and experiment in each case. Go slow, and take out, at each cut, only what the saw will remove easily and without complaint.

#### Jimmie Thinks of Buying a Combination Woodworker

"A whole lot of things can be done with a buzz-saw," said Jimmie, "but it must have some limitations. I've been wondering if it wouldn't pay me to buy a combination machine."

"Combination Grandmother!" I said, hotly. "Where did you ever see a combination tool that was worth powder to blow it up? It seems to be the pet dream—or the untamed nightmare—of every young inventor to combine a whole kit of tools in a jackknife handle, and the result is a spoiled handle.

Better ask your father what he thinks about it."

"I did, and he thinks it would be a good plan."

"He does, does he? Hi there, Blaysdell! This boy says that you approve of combination machines. You must be aging faster than I thought you were."

"Perhaps you've noticed," said he calmly, "that things have changed since you and I were boys, and Jimmie's business is different from what ours has been. To have machines at all portable has only become practicable within a few years, and even now it would hardly be a working possibility for him to carry about a separate machine for each class of work he has to do. I believe that Jimmie can't do better than to buy a combination machine as soon as his business prospects warrant it."

"You didn't talk at all that way when we started out in business."

"No, but conditions have changed since then—and so have machines."

"So have some men's minds," I said sarcastically.

"Yes," he replied with that aggravating grin of his, "such as have not ossified."

#### Making Drip Mould on the Buzz Saw

And that reminded me of the tacks I went down town after, so I got them and came home. As I went out the back way I noticed that Jimmie had been getting out some water drip in a way new to me in some respects. Hardly more than a glance

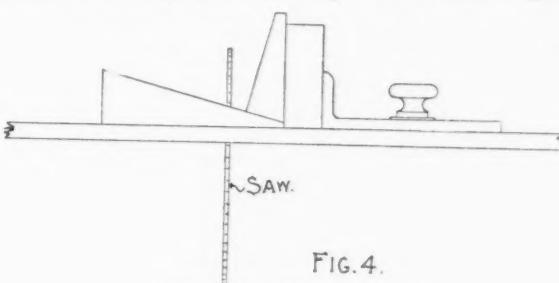
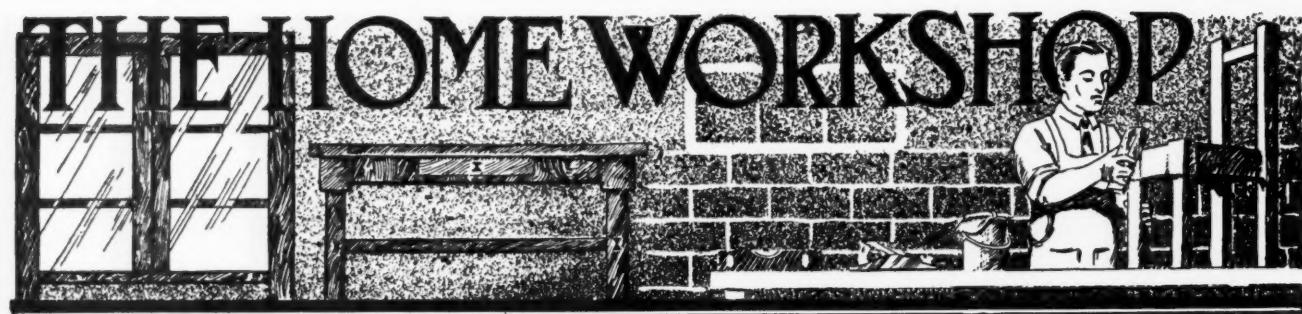


FIG. 4  
Jig for Working Drip Mould

at the scrap heap told me the whole story, but it will take more time to put it on paper—so clumsy is the pen as compared with the eye.

Such as he wanted  $1\frac{1}{4}$  inches wide he got out very economically in this way: He first took a two-inch plank, S2S, and sawed it into strips  $1\frac{1}{4}$  inch wide. He then got out a jig to go on the saw table, against the fence, like the end view shown in Fig. 4.

(Continued to Page 61)



## How to Make Waste Basket and Table

TWO UNUSUAL YET EASILY CONSTRUCTED HAND CRAFT PIECES THAT ARE WORTH WHILE MAKING

By Ira S. Griffith

**T**HE first piece described this month is an arts craft waste paper basket, or box. This piece is exceedingly simple in its construction so that even a beginner need not hesitate to undertake it.

As the sides are rather wide and of thin stock it will be well to make use of built-up veneered stock if

together, the copper ornaments serving to give an appearance of added strength at the top.

For a finish the following will give a rich warm color with reddish brown highlights. Apply a coat of Sumatra brown water stain. Allow it to dry, then sand lightly with number 00 paper and then apply another coat of the same diluted, this time by the addition of an equal amount of water. Sand lightly again then apply a very thin coat of shellac. Sand this too; then apply a coat of paste filler colored in the following proportions by the addition of burnt umber 12 ozs., Venetian red 4 ozs. to each 20 lbs. of light colored filler. See that the surplus filler is well cleaned as the directions advise. Upon the filler, after it has hardened, apply a coat of shellac and upon this several coats of some good rubbing varnish. Sandpaper the shellac coat with fine sandpaper and rub the varnish coats with hair cloth or curled hair. Rub the last coat with pulverized pumice stone and crude oil or raw linseed oil.

### How to Make the Utility or Reception Table

The table, the picture and drawing of which is shown herewith, will be found useful for various purposes



The Finished Waste Paper Box

possible. Stock of this character is frequently carried by local dealers in quarter sawed oak as here shown.

The metal corner pieces may readily be made by the handcrafter himself, copper being used.

#### STOCK BILL FOR BOX

Sides, 2 pieces,  $\frac{3}{8}$  by  $14\frac{1}{2}$  by 20 inches, S-2-S.

Sides, 2 pieces,  $\frac{3}{8}$  by  $13\frac{3}{4}$  by 20 inches, S-2-S.

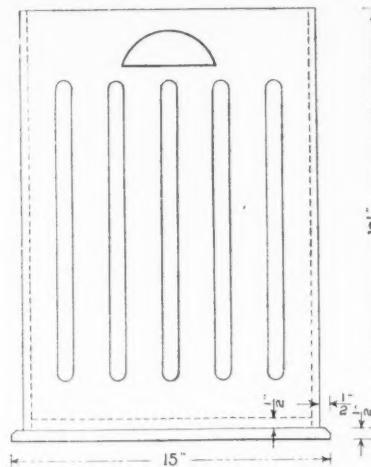
Bottom, 1 piece,  $\frac{3}{8}$  by  $14\frac{3}{4}$  by  $14\frac{3}{4}$  inches, S-2-S.

Bottom, 1 piece,  $\frac{3}{8}$  by  $15\frac{1}{2}$  by  $15\frac{1}{2}$  inches, S-2-S.

The box shown has vertical sides; a slight modification which adds to the appearance is obtained by making the sides slanting, making the tops wider than the bottoms.

Square up the two bottom boards to the dimensions indicated in the mechanical drawing. After this square up the four sides. Lay out the pierced ornamentation upon one of the pieces and work it and then use this as a templet and mark out the rest and work them.

Round head screws were used to hold the box parts



WASTE PAPER BOX.

#### Working Drawing of Box

about a house, office, or public hall. It will look well made of plain sawed or quartered oak.

#### STOCK BILL FOR ROUND TOP TABLE

Top, 1 piece, 1 by  $30\frac{1}{2}$  inches, S-2-S.

Shelf, 1 piece,  $\frac{3}{4}$  by 21 by 21 inches, S-2-S.

Legs, 4 pieces,  $15\frac{1}{2}$  by  $15\frac{1}{2}$  by 30 inches, S-4-S.

Facings, 4 pieces,  $\frac{3}{4}$  by  $2\frac{1}{4}$  by 23 inches, S-2-S.

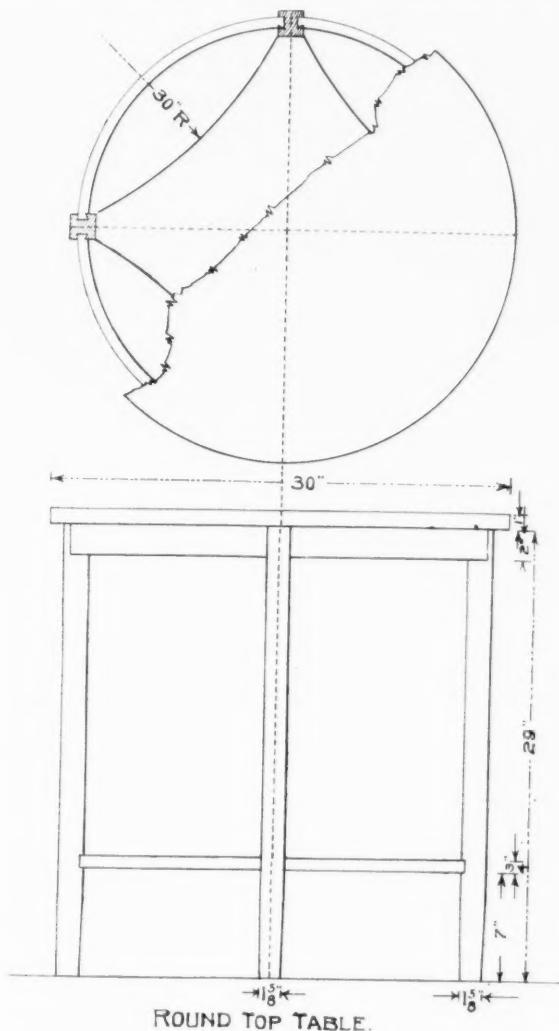
Work may be begun by shaping the top and then the shelf. After this, the facings should be worked to width, then steamed and clamped to forms previously prepared. In making these forms it is well to give them just a little shorter radius than is required for



ROUND TOP TABLE COMPLETED

the facings. The steamed parts will have a slight tendency to straighten when released. Another way would be to saw out backings upon the band saw to the radius required and then veneer these with the quarter sawed oak.

Lay off on the legs and cut the dadoes for the lower



ROUND TOP TABLE.

shelf and also lay off and work the joints at the tops of the legs into which the dovetails of the facings are to be fitted.

It will be noted that the lower ends of the legs are tapered slightly.

Thoroughly scrape and sandpaper all the parts and then assemble. The top is to be fastened to the frame by means of blocks glued and screwed to both top and frame.

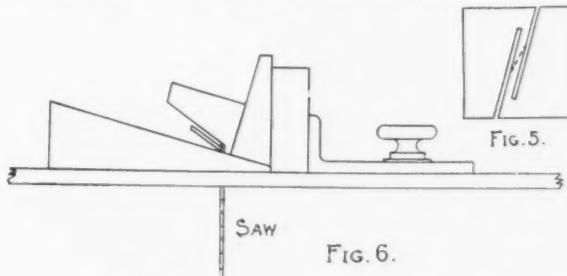
The finish described for the waste paper box will be equally suited to this table.

### Watching Jimmie—Part VI.

*(Continued from page 59)*

Using this, he cut his square strips as shown in Fig. 5, then separated the two parts of each by pulling them apart a little and severing the thin middle section with his jackknife or a chisel, approximately along the dotted lines. Then, using the same jig but setting the fence nearer the saw and raising the table, he sawed them as shown in Fig. 6.

Other sizes were made with practically the same jig—though the bevel had to be changed a little for the wider ones—from 1 1/8 inch stock. In such case the waste was greater but the product was al-



SAWING DRIP MOULD BY MEANS OF JIG

ways cheaper than when bought at the usual moulding rates. In neither case was the waste quite as much as when the job is done on the moulder, for one saves for future possible use the strip which the moulder converts into shavings. By using a fine toothed saw, always kept in prime condition, the work can be done smoothly enough for outside work; but even if one has to plane an edge or two by hand there still remains a saving. Perhaps if one had some sort of a buzz-planer or sander attachment it might work in to advantage on this job. Possibly Blaysdell is more or less right. A buzz-planer attachment wouldn't be difficult to rig. The sander and a boring auxiliary would be dead easy; and perhaps something more might be put on to advantage. Times do change. When I was young American machines were all built too light; and they kept adding weight till I dropped out. Now they are cutting down the weight so as to make them portable. Perhaps I've lived too long. I shall certainly think so if Lorna continues to be as glum as she has been lately, or if Jimmie doesn't come up occasionally of an evening, or if Harriet—drat that woman, she's enough to drive a man crazy.



## How I Figured Pipe and Register Sizes on My Best Furnace Job

By Cecil F. Herington

"**A**LMOST every short cut that I have ever seen," began the Old Builder the next time he had an opportunity to continue his talk on furnace heating, "has lacked the accuracy of the more tedious and painstaking methods, but in many cases the time saved is of great importance and the results obtained quite good enough to serve the purpose. For this reason, doubtless many will prefer the second method of figuring the size of a furnace which is as follows:

"If it is assumed that 4 square feet of wall surface are equal to 1 square foot of glass and that each square foot of glass (or its equivalent) transmits 85 heat units, then the heat loss from my residence would have been figured thus:

Total wall surface.....	2200	square feet
Equivalent glass $\frac{1}{4}$ or.....	550	" "
Window surface.....	250	" "
Total equivalent glass.....	800	" "

which (at 85 heat units per sq. ft.) is 800 times 85 equals 68,000 heat units. This is considerably less than the amount obtained by the careful computations previously made as it entirely neglects the elements of construction and cold attics and cellars. But this may be counteracted to a large extent by taking a furnace pot one size larger than that which, apparently, is required.

"Corresponding to the burning of 5 pounds of coal per sq. ft. of grate surface per hour and an absorbed amount of 8,000 heat units from each pound burned makes each square foot of grate surface capable of supplying 8,000 times 5 or 40,000 heat units per hour to the furnace air. According to the previous computations each cubic foot of furnace air takes up 2.4 heat units in extreme cases so that each square foot of grate will heat 40,000 divided by 2.4 or 16,666 cu. ft. of air, which air will deliver about 16,700 heat units for warming purposes.

"This 16,700 divided by 85 will give the number of square feet of equivalent glass surface that a square foot of grate surface will supply. Working this out it shows that a square foot of grate surface will offset

200 sq. ft. of glass surface or, to be exact, that 196 is the ratio between the two. So with a total of 800 square feet of equivalent glass it is necessary to divide 800 by 196 so to obtain the required area or 4.1 sq. ft., which is equal to a circular grate of 28 inches in diameter. Taking the next size larger to allow for cold attic and cellar gives a 30 inch grate. This is very close to the results attained previously.

"Let me warn you against saving *too* much time in figuring by using the cubic rule of furnace ratings, which many of the manufacturers furnish, as it is altogether too unreliable a method for good work. In these cases the manufacturers have limited the size of the house that a furnace will heat by giving the number of cubic feet of house contents above which their furnaces are not guaranteed to give satisfaction. This method (while the figuring is reduced to simply finding the cubic contents of the structure to be heated) gives results far from being accurate owing to the fact that the heat losses are entirely dependent on the construction, the exposure, the amount of wall surface and the proportion of glass surface; they are not in the slightest affected by the cubic contents.

"Now to get the sizes of the hot air pipes to the various rooms in this building I have been telling you about I took 260 feet per minute for the highest velocity in the pipes going to the first floor and 380 feet per minute for the flues going up to the second.

"The parlor which was on the first floor (on a corner) had two outside walls—one 14 ft. and one 12 ft. with three 5 ft. by 3 ft. windows.

"The 14 ft. side faced north and contained two of the windows so the area of this side was (14 ft.  $\times$  10 ft.) minus ( $2 \times 5 \times 3$ ) or 110 sq. ft. of wall, and 30 sq. ft. of glass. With a northern exposure the wall loss of about 28 heat units per square foot gave  $28 \times 110$  or 3,080 while the window loss of 123 heat units per square foot gave  $30 \times 123$  or 3,690 for the windows. The sum of the losses for this side was 3,080 plus 3,690 or 6,770 total. On the east wall which was 12 ft. in length and had one window the loss was

(12 X 10) minus (5 X 3) or 105 which multiplied by .23 gave 2,415 units for wall loss and 5 X 3 equals 15 X 104 equals 1,560 units for window loss or 3,975 units total for east wall.

"The sum of these two is 6,770 plus 3,975 or 10,745 and I allowed 10 per cent for medium construction and 10 per cent more for a cold cellar, giving a total loss of 20 per cent more or 10,745 plus 10,745 X 20 per cent equals 12,894 heat units. This room then requires about 13,000 cu. ft. of air per hour at 120 degrees Fahr. to keep up its temperature as each cubic foot brings in about one heat unit for warming; 13,000 divided by 60 is 216 cu. ft. per minute. With a velocity of 260 ft. the required cross section of the pipe will be 216 divided by 260 or .83 sq. ft., which lies between a 12 in. and 13 in. diameter pipe. If the run is longer than the average, use the larger size; if it is shorter, use the smaller.

"On an upstairs bedrom I had the conditions of one exposed wall 10 ft. long with two windows 5 by 3 and the room facing south.

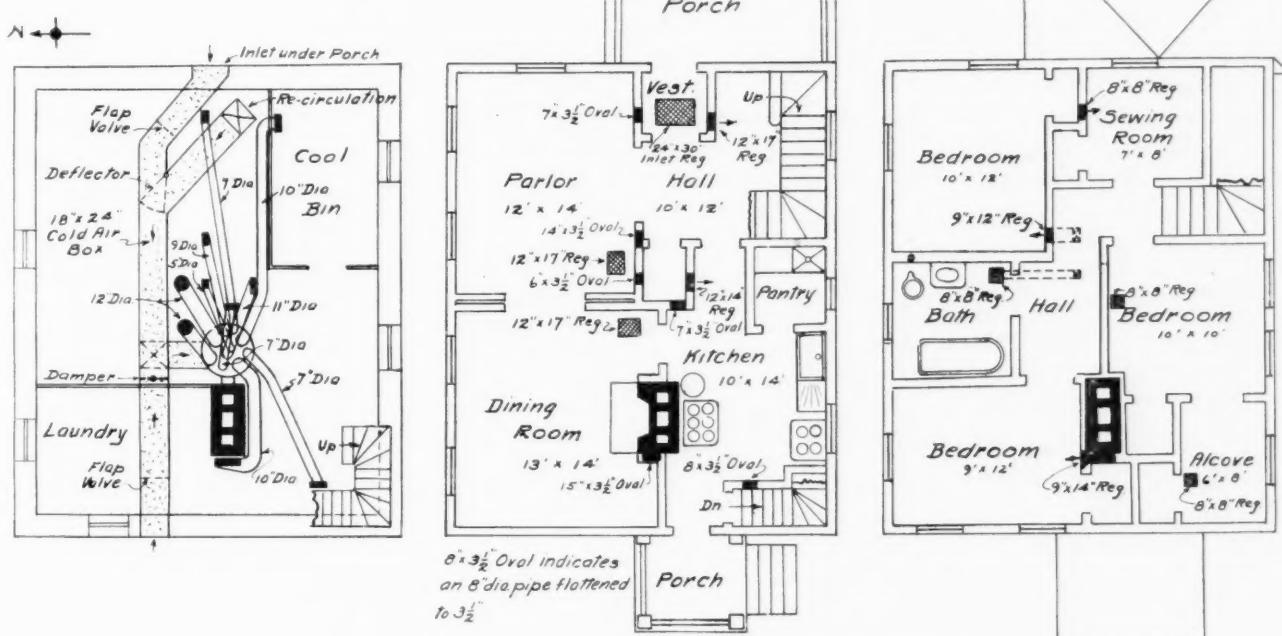
"This gave heat losses of (10 X 10) minus (5 X

85 cu. ft. per minute. At a velocity of 380 ft. in the pipe I needed a pipe area of 85 divided by 380 or .22 sq. ft., which is satisfied by a 6 in. diameter pipe in the cellar and a 7 in. pipe ovaled to 3½ in. for the riser.

"Having carefully gone over each room in a like manner I turned my attention to the registers, which are usually made so as to have a free area of about ⅔ of the overall area. I then figured out the size of each register so as to make the free area about 10 to 20 per cent greater than the pipe so that for the parlor the net area of the register was the area of the parlor pipe plus 10 per cent or .83 sq. ft. plus .08 sq. ft. equals .91 sq. ft. and the overall area 50 per cent more or .45, making a total area overall of 1.36 sq. ft.; a register 12 x 17 is the nearest standard size.

"A good list of proper registers for various sizes and shapes of pipe is as follows:

DIMENSIONS OF PIPES.	REGISTERS.
6-in. Dia. or 6 ovaled to 5 or 7 ovaled to 3½ or 7 ovaled to 4.....	6 x 10
7-in. Dia. or 8 ovaled to 5 or 7 ovaled to 6.....	7 x 10
8-in. Dia. or 9 ovaled to 4 or 9 ovaled to 5 or 10 ovaled to 3½.....	8 x 12



Floor Plans of the Old Builder's Residence Showing Warm Air Heating System

3 X 2) or 70 sq. ft. wall surface at 21 heat units each, giving 1,470 wall loss and 5 X 3 X 2 or 30 sq. ft. window surface at 93 heat units, giving 2,790 window loss.

"Then the total wall and window loss was 4,260 heat units; construction and cold attic 20 per cent more, or 850 heat units additional, giving a total heat loss of 5,110 heat units.

"This required 5,100 cu. ft. of hot air per hour or

9-in. Dia. or 9 ovaled to 6 or 11 ovaled to 4 or 12 ovaled to 3½.....	9 x 14
10-in. Dia. or 15 ovaled to 4 or 14 ovaled to 4 or 12 ovaled to 5.....	10 x 15
11-in. Dia. or 12 ovaled to 6 or 19 ovaled to 4.....	11 x 16
12-in. Dia. or 20 ovaled to 3½.....	12 x 17
13-in. Dia. .....	14 x 20
14-in. Dia. .....	14 x 22
15-in. Dia. .....	15 x 22
16-in. Dia. .....	16 x 24

# YOURS for SAFER BUILDING

**What Every Architect and Builder Should Know About Strength of Materials and the Design of Safe Construction**

## Noon Hour Talks by the Boss Carpenter

### Talk No. 10

THE BOSS TELLS HOW TO FIGURE LONG COLUMNS WHEN THE LOAD IS CENTRALLY APPLIED

THE first warm day of the season brought the men outside again for their noon hour discussion of the building question. The Boss had the "log book" open and was at work on a sketch which turned out to be Fig. 20.

"We have looked into the subject of short columns fairly well," said the Boss, "and now I want to tell you something about long ones. You will remember that I told you back in Talk No. 7, that columns in which the length was greater than 10 or 12 times the least dimension—both measured in the same unit of length—were considered to be *long columns*, and could not be figured by Formula No. 5. Today we will see the method for figuring these long columns when the load is applied at the *exact center*, as would be the case in Fig. 20.

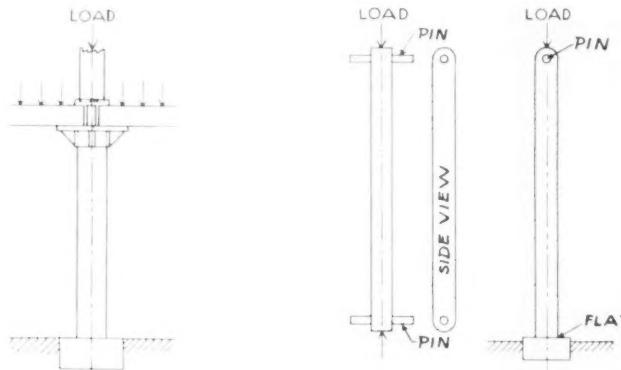


Fig. 20.  
Long Column with  
Central Load

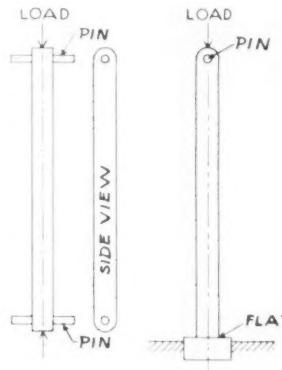


Fig. 21.  
Examples of Pin End, and Pin  
and Square End Columns

"If you look in your hand books, you will find that the common kind of columns in building construction are those with *flat ends*, or *fixed ends*. A column with flat ends has the ends nicely squared up so that they are exactly at right angles with the length of the column. This would mean that the column would bear equally over all parts of the end when resting on a flat surface, and also that the load at the top would be supported equally by all parts of the top surface, and would act straight down along the center line of the column. Of course, it is understood that

the column is straight and has no bad knots or blemishes at any part of its length. Also that the column cannot move side-ways at either end.

"A fixed end column would either have the ends flat and well braced to prevent side tipping, or more properly would be riveted at both ends into some part of the structure, as in the case of structural steel work. In figuring, it is common practice to consider flat end and fixed end columns as being the same.

"Another type of column may have *pin ends*, while in some cases we may have a column with one end flat and the other end pinned. A pin end column will not support so great a load as a flat end column of the same size and length, on account of the ease with which the column may turn at the ends after buckling begins."

The Boss then sketched Fig. 21 in the "log book," to show the different kind of end conditions, and designated each one as shown.

"Since we deal mainly with square, or flat end columns," said the Boss, "we will examine the formulas for columns which are intended for this type of ends. While there are many different formulas for figuring the strength of columns, I am going to give you two which have been found to give good and safe results. The first formula will be easier for you to solve, but the second is an old standard formula which is used to a great extent, especially for cast iron and structural steel work.

"This first formula is called Johnson's parabolic column formula, and as given is very useful to us in solving problems in regard to timber columns where the value of length divided by least width or thickness is *not greater than 60*. The ends are supposed to be flat, held firmly in place, and the load is to be exactly central. For convenience, we will write the same formula in four different ways, each way being for a different kind of timber.

"For Georgia yellow pine columns

$$\frac{W}{A} = 4,000 - \left( \frac{8}{10} \times \frac{l}{d} \times \frac{l}{d} \right) \quad (\text{Formula No. 7a.})$$

"For short-leaf yellow pine columns

$$\frac{W}{A} = 3,300 - \left( \frac{7}{10} \times \frac{l}{d} \times \frac{l}{d} \right) \quad (\text{Formula No. 7b.})$$

"For white oak columns

$$\frac{W}{A} = 3,500 - \left( \frac{8}{10} \times \frac{l}{d} \times \frac{l}{d} \right) \quad (\text{Formula No. 7c.})$$

"For white pine and spruce columns

$$\frac{W}{A} = 2,500 - \left( \frac{6}{10} \times \frac{l}{d} \times \frac{l}{d} \right) \quad (\text{Formula No. 7d.})$$

"In the above formulas (No. 7), the value of  $W$  is the *breaking central load*, in pounds;  $A$  is in square inches of area of cross-section of column;  $l$  is the length of the column, in inches; and  $d$  is the least dimension of the cross-section of the column in inches.

"When we have occasion to use a factor of safety in solving for the working load as is necessary in all design, we divide *both* parts of the right-hand side of the formula by the factor desired, or leave the equation as it is and divide our answer for  $W$  by the factor."

To illustrate the use of these formulas, the Boss proposed the following problem: What central load will a 6 by 6-inch Georgia pine column 10 feet long bear with a factor of safety of 5?

He then wrote down Formula No. 7a for Georgia pine as follows:  $l=10 \times 12=120$ ;  $d=6$ ; there-

fore  $\frac{l}{d} = \frac{120}{6} = 20$ , and the formula applies to the

problem, since the value of  $\frac{l}{d}$  is less than 60.

Then  $\frac{W}{A} = \frac{W}{6 \times 6} = 4,000 - \left( \frac{8}{10} \times \frac{120}{6} \times \frac{120}{6} \right) = 3,680$  and  $W = 3,680 \times 36 = 132,480$  pounds. He explained that this was the value of  $W$  for breaking. Also, that with a factor of safety of 5, the value of  $W$  should be divided by 5 in order to get the working

load. Then  $\frac{132,480}{5} = 26,496$  pounds, which is the answer.

"Now," said the Boss, "suppose that we reverse the problem and find what size of white oak column 15 feet long will be needed to carry a central load of 50,000 pounds with a factor of safety of 8. We will use a square cross-section timber in this case, since the square cross-section is the most economical for

strength as a column with flat ends.

"Since we do not know  $d$  at this time, we will have to solve the problem for  $d$ , and then check back and see that the value of  $\frac{l}{d}$  is less than 60. If this is not so, we would have to use some other formula in our solution.

"We will use Formula No. 7c for white oak. Since the working value of the load is 50,000 pounds, the breaking value on the basis of a factor of safety of 8 would be  $50,000 \times 8$ , or 400,000 pounds. This would be the value of  $W$  to use in the formula.  $A$ , the area of the cross-section being unknown, we place  $d \times d$ , the formula for section area of a square timber in its place in the formula. The value of  $l$  is  $15 \times 12 = 180$  inches.

"Filling in these values, we have

$$\frac{400,000}{d \times d} = 3,500 - \left( \frac{8}{10} \times \frac{180}{d} \times \frac{180}{d} \right)$$

Multiplying both sides of the equation by  $d \times d$  and cancelling where possible, we would have left

$$400,000 = (3,500 \times d \times d) - \left( \frac{8}{10} \times 180 \times 180 \right)$$

$$= 3,500 d^2 - 25,920.$$

Carrying the 25,920 to the other side of the equation; changing its sign and adding we have

$$425,920 = 3,500 d^2$$

$$\text{or, } d^2 = \frac{425,920}{3,500} = 122 \text{ (about).}$$

"Our problem is now solved by finding what number multiplied by itself is equal to 122, or we may use what is called a "Table of squares," which will be found in our hand books. Since  $11 \times 11$  equals 121, our answer would be a 11 inch square piece of timber. As seen by the tables in Talk No. 6, a commercial 12 inch by 12 inch would be about right for this place.

"Dividing the length, 180 inches, by 11, we see that the value of  $\frac{l}{d}$  is equal to about 16. This shows that the formula used applied to the case.

"If our problem was to investigate a column of a given size which was carrying a known central load, to find out the factor of safety in the column as it stood, we would proceed according to the following plan. First, solve for the breaking load for the column by using the Formula No. 7 which corresponded to the kind of wood. Then, divide this breaking load by the



actual load known to be on the column. The result is the factor of safety wanted."

"Tomorrow noon," said the Boss, "we will look at the other column formula which I told you about earlier in this talk."

## Boss Carpenter Question Box

**State your problems briefly yet clearly and the Boss will gladly answer them here.**  
Yours for Safer Building.—Editor.

### Designing a Trussed Timber Beam

To the Editor:

Chicago, Ill.

I have recently had occasion to design a trussed timber beam to be used to support a part of the roof on a building 65 feet wide by 96 feet long. I used these beams across the short dimension of the building and spaced them 12 feet apart. This roof was of the ordinary tar and gravel type laid on 1-inch pine sheathing, carried by 2 by 8-inch rafters, spaced 16 inches center. Will you explain the general method to be used in designing a beam of this type?

#### ONE OF THE CALCULATING SQUAD.

Answer: A trussed beam or girder of this type should be built up of at least three heavy timbers placed so as to allow two large steel rods to pass between them as shown in Figure 1. These rods are slanted downward towards the one-third points of the beam, and short oak or cast iron struts placed at these points hold the rod away from the timber. The rods are fitted with washers and nuts at the ends which bear upon steel or iron plates placed across the

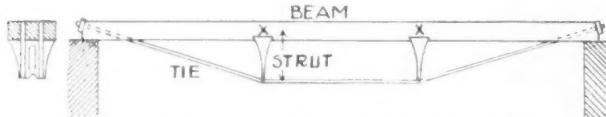


Fig. 1—Elevation and Section of Trussed Beam.

ends of the timbers as shown in Fig. 1. All joints in the timbers should be carefully and firmly made so as to make the strength of the combined timber practically equal to that of one solid piece of timber. All roof or floor joists should be supported equally across the whole width of beam or girder so that no one piece or part of the girder will carry more load than any other part. The necessity for this equal division of load across the width of the girder will be apparent in the calculations which follow. Sound stock should be used and full sizes should be obtained whenever possible. A reduction in the size of the timber used, due to the surfacing, will affect the value of the calculations as made. Joints in timbers should occur at about the quarter points of any one of the thirds of the span rather than in the middle or over a strut.

The following formulas may be used for determining the amounts of stress or load effect which is felt by each one of the members shown in Fig. 1.

$$\text{Tension in tie-rod} = \frac{\text{Total load on beam}}{3} \times \frac{\text{Length of slant in tie}}{\text{Length of strut}}$$

$$\text{Compression in beam} = \frac{\text{Total load on beam}}{3} \times \frac{\text{Length of beam from end to strut}}{\text{Length of strut}}$$

$$\text{Compression in strut} = \frac{\text{Total load on beam}}{3}$$

All lengths are measured along center lines of pieces; length of strut is from center of rod to middle of depth of beam.

Thus it would seem that it would be necessary for us to obtain the total amount of load to be carried by one trussed beam, and then find the lengths of each one of the parts mentioned in the above formula.

Suppose that we take the problem given in the letter above. We will say that the two struts are placed about 20 feet from each end of the beam. This would make the length of the timber between end of beam and first tie about 20 feet. Suppose that we limit the depth from center of steel tie rod to center of timber beam to 30 inches; thus the length of our strut to be used in the formulas above would be 30 inches. By solving a right triangle the sides of which are 20 feet and 2½ feet, we find the length of the steel tie rod from the end of beam to bottom of strut to be 20½ feet.

#### Load on One Beam

The next thing is to find the total amount of weight carried by one trussed beam. Allowing 6 pounds per square foot for the weight of gravel roofing, 4 pounds per square foot for 1-inch pine sheathing, 3 pounds per square foot for 2-inch by 8-inch rafters placed 16-inch centers, and 40 pounds per square foot for snow load on the roof, we have a total of 53 pounds per square foot of roof surface to be carried by the girder, as well as the weight of the girder itself which we cannot tell at the present time. Since one girder will support a roof area of  $65 \times 12 = 780$  square feet of roof surface, the total load to be carried by one girder would be  $780 \times 53$  which would be in the neighborhood of 41,500 pounds of load as a rough estimate.

The following values taken from Kidder's Pocket Book will be of service in solving our problem by the formulas given above.  $C = 1000$  pounds per square inch for hard pine and Oregon pine; 800 pounds per square inch for spruce and white oak; 700 pounds per square inch for white pine; and 13,000 pounds per square inch for cast iron.  $K = 100$  pounds per square inch for hard pine; 90 pounds per square inch for Oregon pine; 70 pounds per square inch for spruce; and 60 pounds per square inch for white pine.  $T = 15,000$  per square inch for steel. In the above,  $C$  is the allowable unit compressive stress in the material;  $K$  is for use in the bending formula given below; and  $T$  is the allowable unit tensile strength to be used.

We will build up our girder of three thicknesses of yellow pine, using two steel rods as shown in Fig. 1.

#### Size of Tie Rod

The tension in the steel rods will be found from the tension formula above, as follows:

$$\text{Tension in tie-rod} = \frac{41,500}{3} \times \frac{20}{2.5} = 111,000 \text{ pounds.}$$

If two rods were used, each one would bear a tension of 55,500 pounds. Allowing 15,000 pounds per square inch for steel in tension, we would need to use 2¼-inch diameter rods with ends upset so as to leave a sectional area at the bottom of the thread equal to that of the rod at any part of its length. The sizes of rod needed to make up the cross sectional area, found by dividing  $55,500 \times 15,000$ , may be found from tables of bolt sizes in any hand book.

#### Breadth of Timber for Compression

From our formula for compression in timber beam we find from above:

$$\text{Compression in beam} = \frac{41,500}{3} \times \frac{20}{2.5} = 110,500 \text{ pounds.}$$

Using three beams gives  $\frac{110,500}{3} = 36,830$  pounds on each

beam. Dividing 36,830 by 1000, the value of C given in the table above for yellow pine, we find that 36 8/10 square inches of timber will be needed in the beam for direct compression alone. Suppose that we assume a 3 by 14-inch yellow pine timber for each one of these beams, since this size will give ample section area.

#### Breadth of Timber for Bending

We must remember that the above calculation is for the direct compression action on the beam due to the truss effect in the beam. Where the roof load is uniformly distributed along the length of the beam, there will be a bending action also to be taken care of in addition to this compressive action. This is considering the beam as a beam alone, and not as a part of a truss. The total breadth of girder necessary to withstand the bending action as a beam would be found by the formula:

$$b = \frac{WL}{6 \times h^2 \times K}$$

Where W is the total load on the beam in pounds; L is length of one section of the beam from end to strut, in feet; b is the breadth needed for bending action, in inches; h is the depth of the beam, in inches; K is a constant depending upon the kind of timber, and taken from the values given above. Filling in formula and solving, we have

$$b = \frac{41,500 \times 20}{6 \times 14 \times 14 \times 100} = 7 \text{ inches (nearly)}$$

for width of beam for bending, or 2 1/3 inches for each of the three beams.

Now we will find our total width of girder by adding the widths of timber necessary to withstand direct compression as a truss member, and to hold the roof load when uniformly distributed along the length of the beam. Dividing 36 8/10 by 14, we would get 2 6/10 as the width of each beam for compression alone.

Adding 2 1/3 and 2 6/10, we would get about a 5-inch width for each of the three beams.

Total width of girder would then consist of three widths of beam and two spaces for the rods to pass up between beams. The two 2 1/4-inch diameter rods would require a space of 4 1/2 inches. Therefore, total width of beam would be (3 × 5 inches) + (2 × 2 1/4 inches) = 19 1/2 inches.

$$W = 41,500$$

The load on the short strut is  $\frac{W}{3} = \frac{41,500}{3} = 13,830$  pounds.

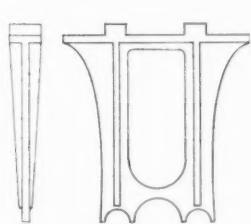


Fig. 2—Iron Strut.

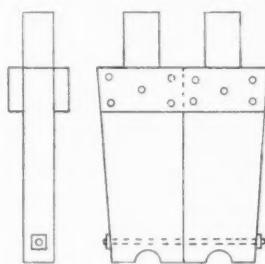


Fig. 3—Wood Strut.

Struts should be of the same width as the beam on which they rest, the sectional area when made as in Fig. 2 or Fig. 3, will be ample. If struts are made of oak, heavy stock not less than 2 inches thick should be used. Cast iron is to be preferred for this purpose.

It must be noted that the method of calculation outlined above is for a uniformly distributed load on the trussed arms.

THE BOSS CARPENTER.



#### Useful Information

To find the circumference of a circle multiply diameter by 3.1416.

To find diameter of a circle multiply circumference by .31831.

To find area of a circle multiply square of diameter by .7854.

To find surface of a ball multiply square of diameter by 3.1416.

To find side of an equal square multiply diameter by .8862.

To find cubic inches in a ball multiply cube of diameter by .5236.

Doubling the diameter of a ventilator pipe increases its capacity four times.

A gallon of water (U. S. standard) weight 8 1/8 lbs. and contains 231 cubic inches.

A cubic foot of water contains 7 1/2 gallons, 1,728 cubic inches, and weighs 62 1/2 lbs.

To find the pressure in pounds per square inch of a column of water multiply the height of the column in feet by .434.

Steam rising from water at its boiling point (212 degrees) has a pressure equal to the atmosphere (14.7 lbs. to the square inch).

A standard horse power: The evaporation of 30 lbs. of water per hour from a feedwater temperature of 100° F. into steam at 70 lbs. gauge pressure.

To find capacity of tanks any size: given dimensions of a cylinder in inches, to find its capacity in U. S. gallons: Square the diameter, multiply by the length and by .0034.

A ton of hard coal (loose) measures 35 1/2 cubic feet.

A ton of soft coal (loose) measures 41 cubic feet.

One square foot of grate will consume on an average 12 lbs. of hard coal or 20 lbs. of soft coal per hour with natural draft.

One cord air-dried hickory or hard maple weighs about 4,500 lbs., and is equal to about 2,000 lbs. of soft coal.

One cord air-dried white oak weighs about 3,850 lbs., and is equal to about 1,715 lbs. of soft coal.

One cord air-dried beech, red oak and black oak weighs about 3,250 lbs., and is equal to about 1,450 lbs. of soft coal.

One cord air-dried poplar, chestnut and elm weighs about 2,350 lbs., and is equal to about 1,050 lbs. of soft coal.

One cord air-dried average pine weighs about 2,000 lbs., and is equal to about 925 lbs. of soft coal.

From the above it is safe to assume that 2 1/4 lbs. of dry wood is equal to 1 lb. of average quality of soft coal. A pound of dry pine is worth as much for fuel as a pound of dry hickory.

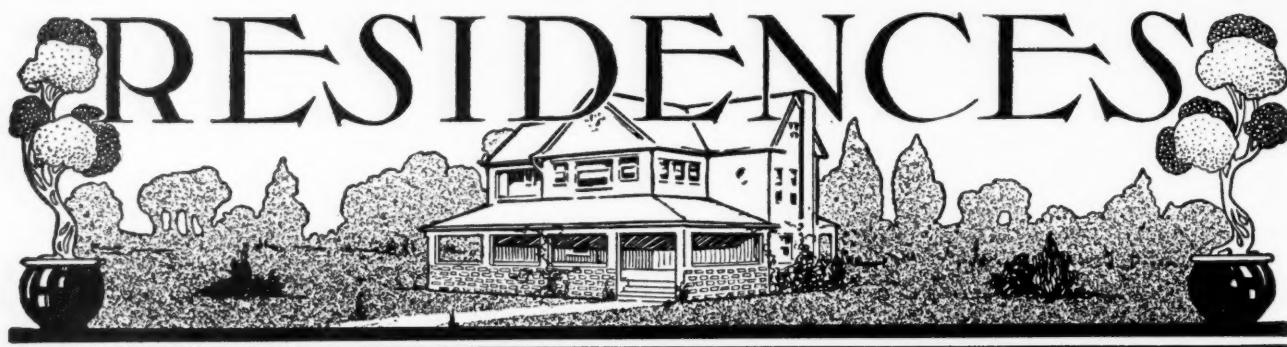


#### An Old One in Rhyme

Said the bald-headed man to the waitress bold,  
"Look here, woman! My cocoa's cold!"

She replied scornfully, "I can't help that!

"If the blame thing's chilly, put on your hat."



## Plans for Six-Room House of Moderate Cost

FULL SET OF ARCHITECT'S WORKING DRAWINGS AND RENDERED PERSPECTIVE OF A WELL DESIGNED HIP ROOF DWELLING

**I**N constructing the house shown here, it was the desire of the builder to keep down the cost as much as possible and still maintain a feeling of solidity, interior roominess and comfort in the finished building. By adopting the square type and following simple lines this splendid result was obtained.

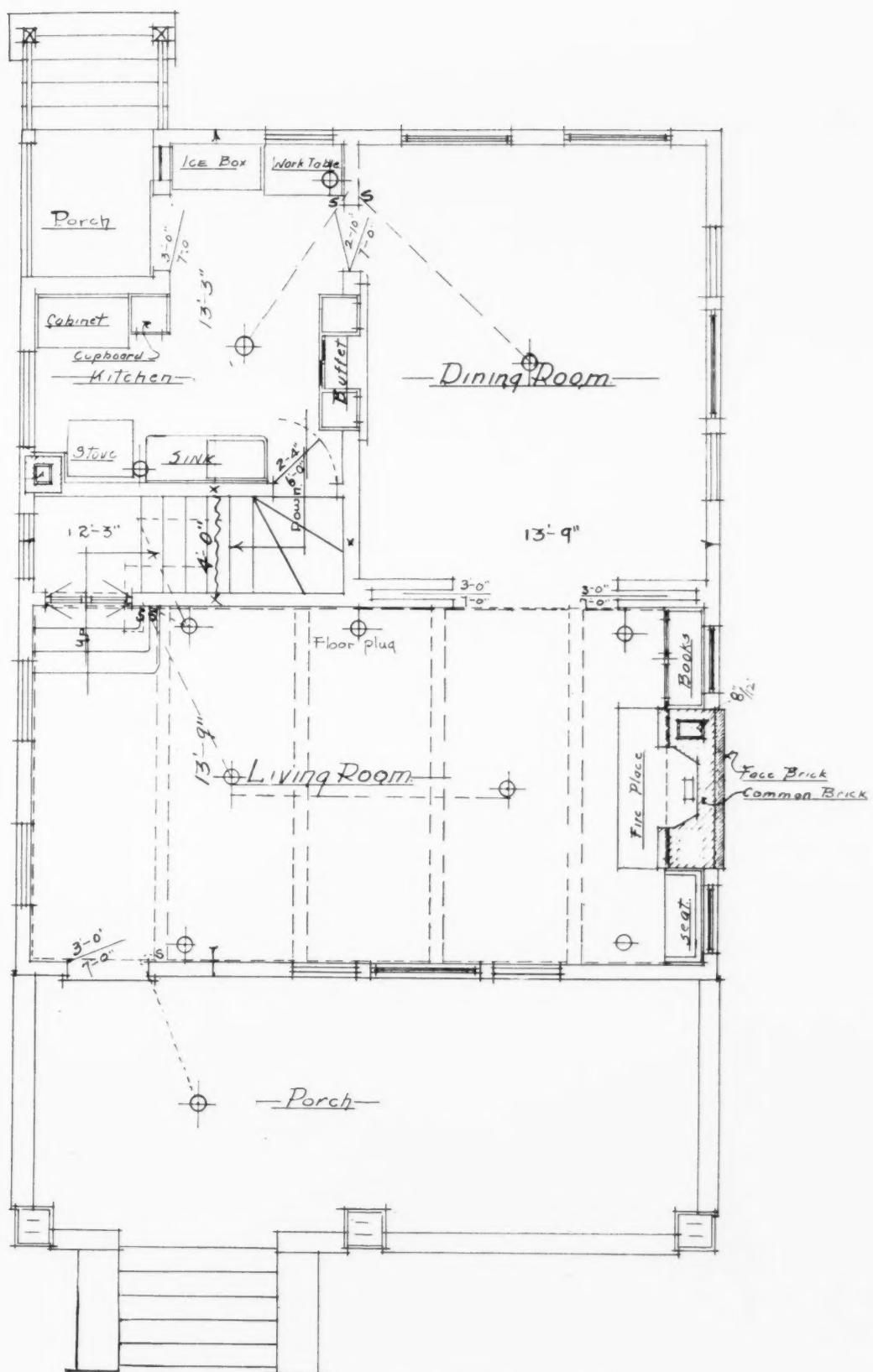
The plans show a large living room with fire place. This room in accordance with a popular custom, runs the full width of the house. Sliding doors open on the dining room with its built-in buffet. The kitchen is conveniently placed along side of the dining room and has built-in cabinet, cupboard and ice box ar-

ranged for outside icing. The kitchen table is built in under the window.

Stairs lead directly from the living room to the second floor. Here are three bedrooms, spacious and with good closet room. The bathroom is so placed as to be easily reached from any bedroom. A nice sleeping porch opens off the front room. Special attention is directed to the placing of the windows which lend themselves most agreeably to the outside decoration and provide an unusual amount of light and air for every room. The plans given here will prove worth following in building a highly desirable home.



Very Pleasing Square Type Dwelling. Designed for Mrs. M. J. Gilleas, Cherokee, Iowa  
COMPLETE WORKING DRAWINGS FOR THIS HOUSE ARE PRESENTED ON THE FIVE PAGES FOLLOWING



FIRST FLOOR PLAN

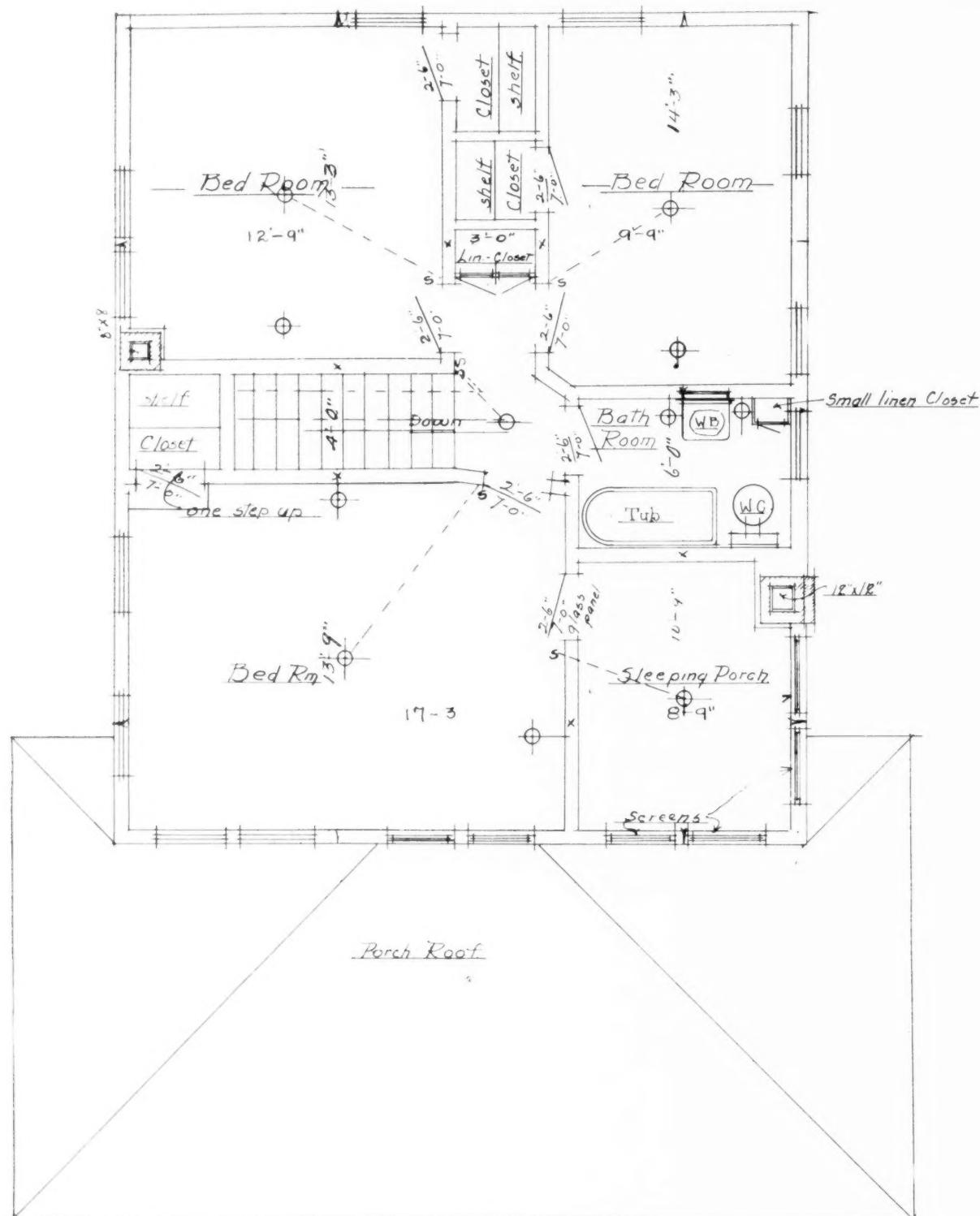
(House Shown on Opposite Page)

### Joints in Concrete Floors

Where a finish is applied to a structural concrete floor slab reinforced with steel throughout, and where every means are taken to bond the finish to the under-slab, there is no excuse for the line joint which is so generally used. It does not prevent cracks; it is only used because it is conventional. The first trouble experienced with the concrete floor arises from the

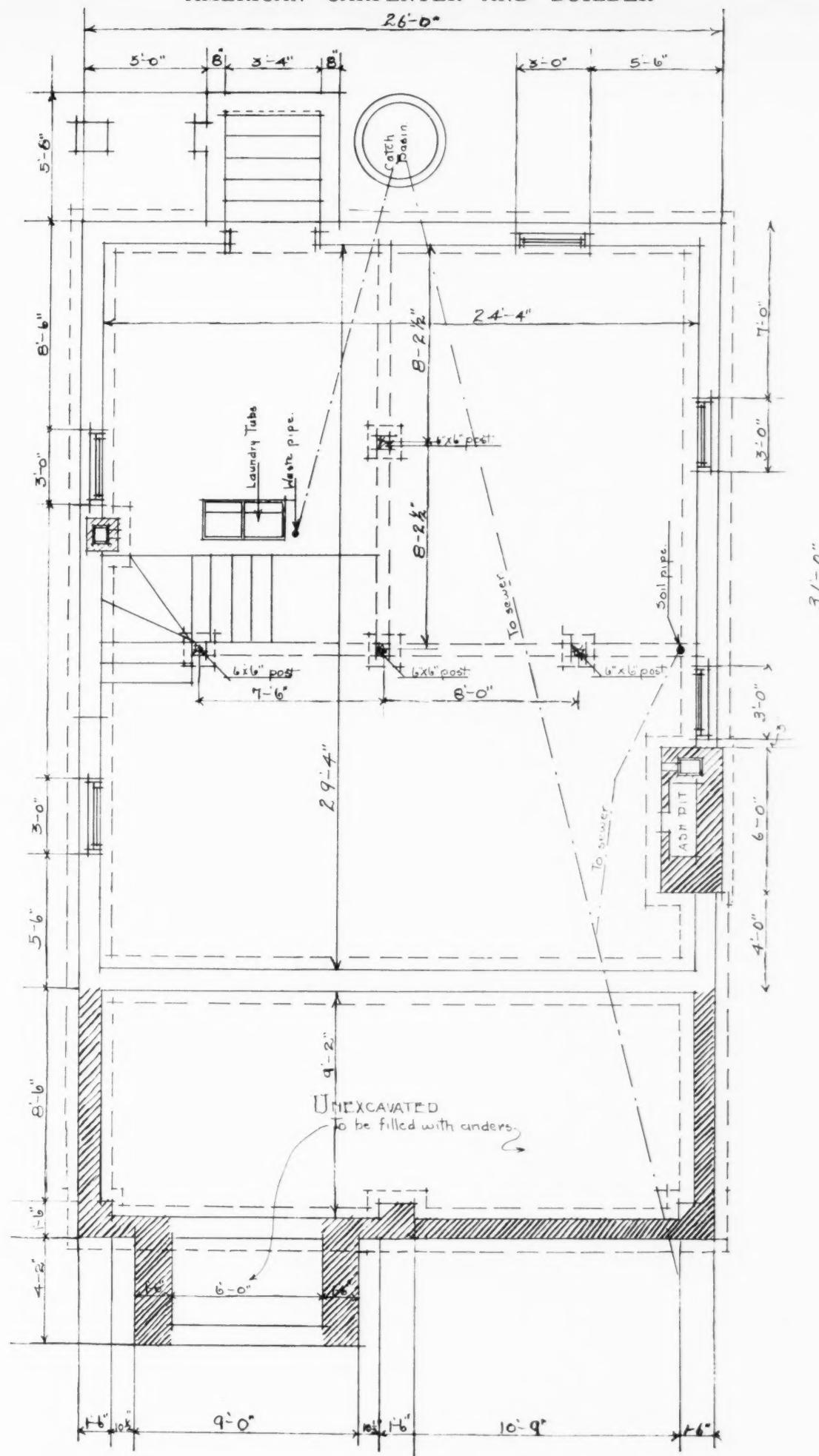
breaking down of the edges of these joints, manifestly they therefore should be omitted.

Basement pavements should be laid in as large blocks as possible. A 10 by 10 block of 4-inch pavement laid on a good bottom is reasonably free from danger of cracking. Structurally, it is probably better to lay the floor continuously without joints and let cracks occur where they may.—Leonard C. Wason,



SECOND FLOOR PLAN

(House Shown on Page 68)



# FOUNDATION AND BASEMENT PLAN

(House Shown on Page 68)

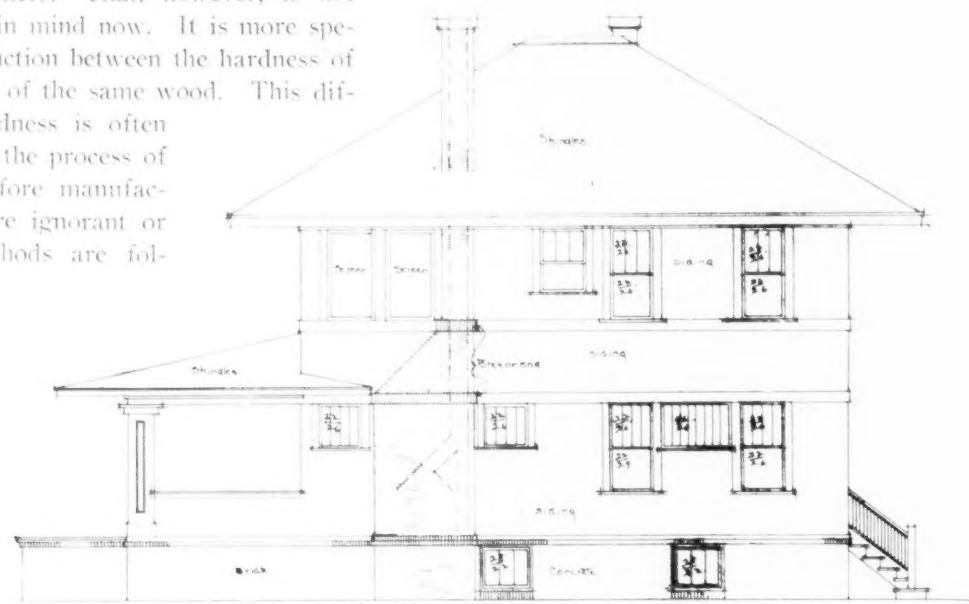
### Hardwood and Hard Wood

What is called hardwood trim as distinguishing it from pine, cypress, and the conifers generally, is much more conspicuous now than ever before. Some of the carpenters do not like it either, because it is harder to put up and it is often very mean stuff to nail, calling for boring at times and making the work slow and tedious all the time.

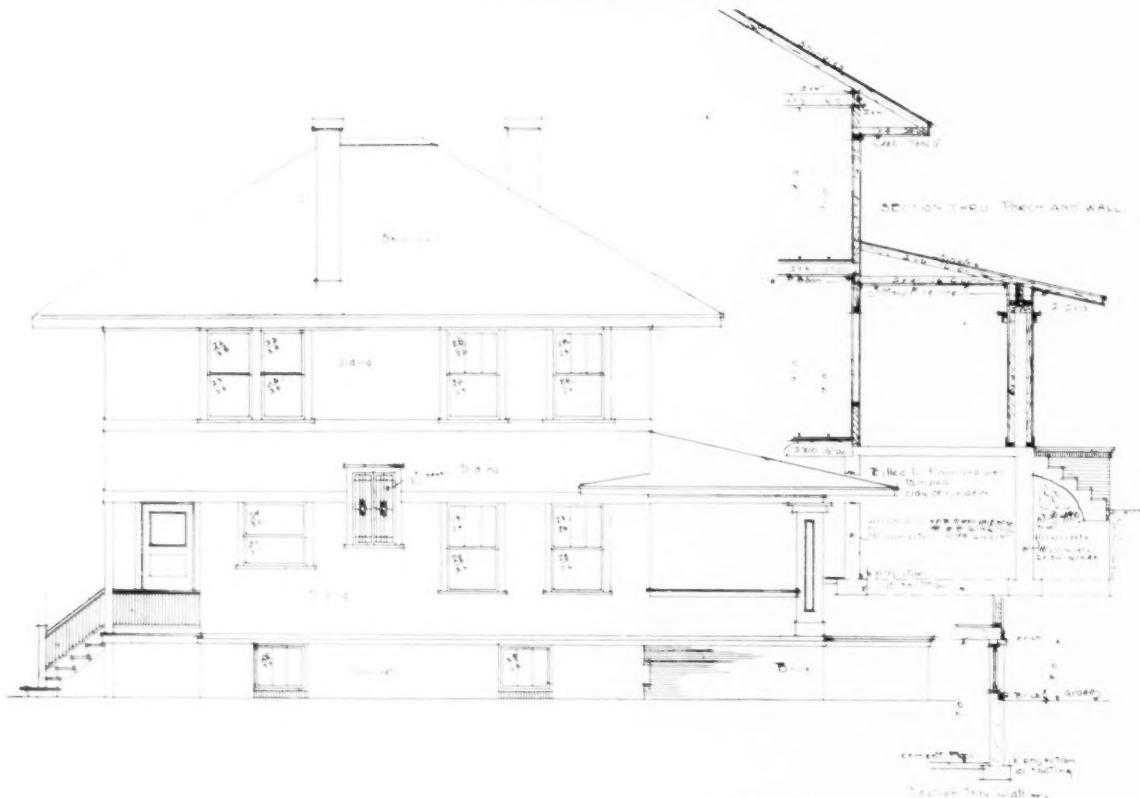
It is well to bear in mind in this connection that there is a distinction between the hardwoods and hard wood. There are some of the hardwoods that are harder than others. That, however, is not the distinction in mind now. It is more specifically a distinction between the hardness of different pieces of the same wood. This difference in hardness is often due directly to the process of kiln drying before manufacturing. Where ignorant or indifferent methods are fol-

lowed in kiln drying at the planing mill, the wood is case hardened and becomes what we might term literally hard. It has a harsh, shelly sound when being worked in the machine, and it is very difficult to drive nails through and work with tools.

Some of the progressive manufacturers of oak and other hardwoods have found that by the exercising of proper care in drying it is possible to get this hardwood thoroughly dry without producing this excessive hardness. One who has learned to distinguish the difference can tell almost in an instant upon coming



RIGHT SIDE ELEVATION



LEFT SIDE ELEVATION

(House Shown on Page 68)



FRONT ELEVATION



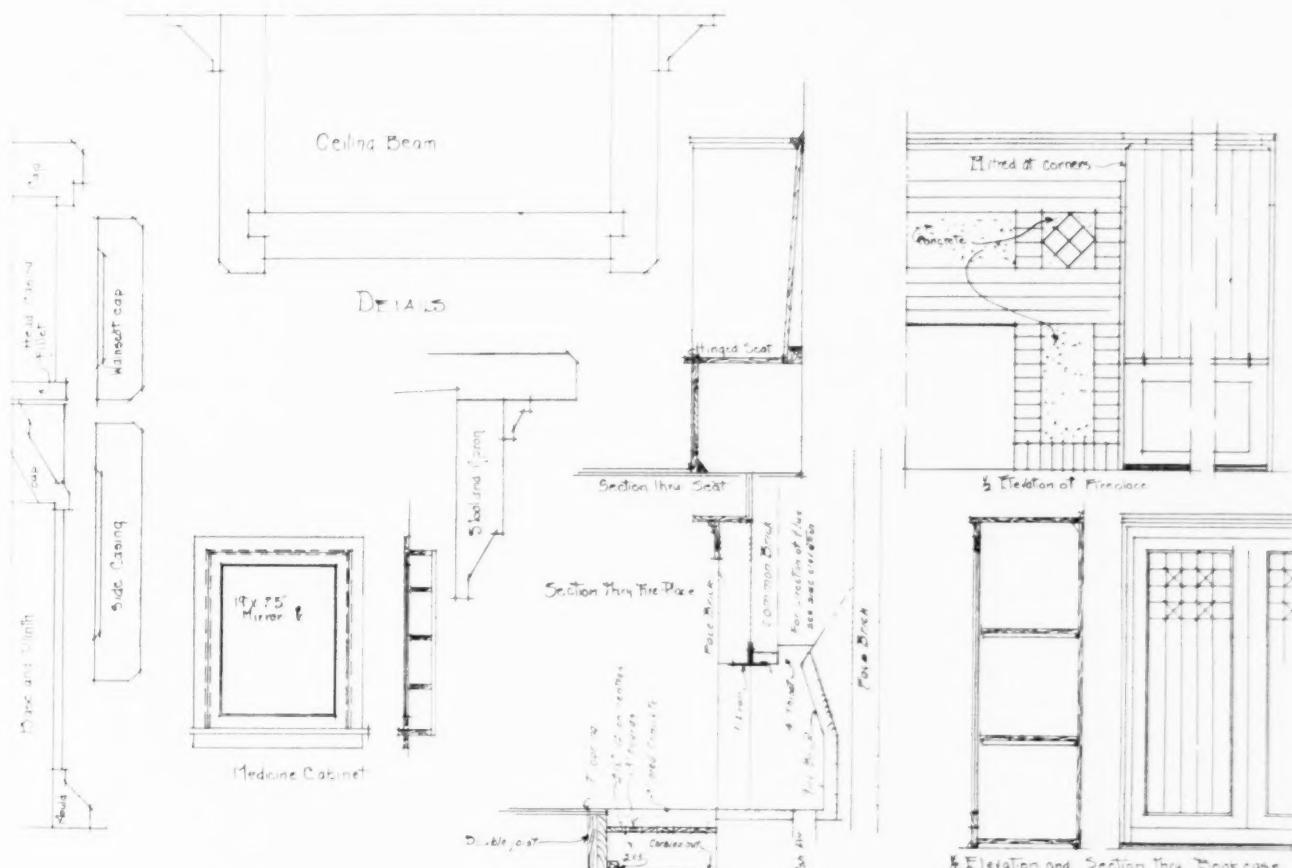
REAR ELEVATION

into a planing mill whether the wood has been indiscriminately dried and case hardened or whether it has been dried carefully so as to keep it soft and easy to work.

It may be well to keep this distinction in mind when you have a job involving lots of hardwood trim, for

it is worth while to find a planing mill that can dry such wood as oak and yet preserve enough softness in texture that it can be worked and nailed readily. It not only means a saving of time and temper at the work, but it means a better job all around.

J. CROW TAYLOR.



DETAILS OF INTERIOR TRIM

(House Shown on Page 68)

## The Editors Drawer

New things  
worth while

### Something New in Window Screens

Some ingenious Yankees are to blame for the newest improvements in window screens. We are already indebted to New England for almost all of our labor-saving carpenters' tools and clever builders' hardware. This time it is rock-ribbed old Vermont that furnishes the new idea and it looks like a worthy contribution to the cause of better building.

A window screen is now offered that rolls up like a curtain. This is an inside screen which screens simply the opening, not the glass. When it is not needed, it rolls down tightly into its small metal case.

This new screen never requires removing from the window casing in the Autumn. It is rolled into its case and stored away with one downward stroke of the hand; when the first fly appears in the Spring, one upward motion of the hand, a few passes of the duster and you are fixed. You don't have to go down cellar to get out your old screens, have them cleaned, painted and repaired and finally set into place.

For screening outward opening casements and French windows these new screens will avoid the trouble. It is certain that many home builders will want these screens just as soon as they are introduced.



This shows the Rollaway screen in place. The frame is purposely left unpainted to show exact space it occupies.

### A Surprise for You

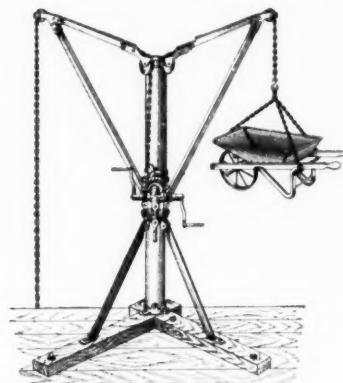
In order to test out quickly a new proposition, one of the AMERICAN CARPENTER AND BUILDER advertisers is willing to send free to every one of our readers writing them, a mighty useful and time-saving tool of great daily convenience. They are not saying what this tool is, but simply state it is the handiest ever invented and should be in every carpenter's kit. If you will send your name and address to Sherman & Wright, First National Bank Bldg., Pittsburgh, Pa., you will receive this free.

### New Double Boom Derrick

Contractors and builders are now able to have a circle swing derrick with two booms, so that they can hoist the loaded wheelbarrow and let down the empty one at the same time. The arrangement of such a derrick is shown in the accompanying illustration. This derrick

is the outgrowth of actual needs. It has been designed and is being made by a well-known firm of practical building contractors. They understand what is needed in a wheelbarrow derrick and have evolved this.

This derrick is fitted so that the handles are always turned forward, no matter whether the wheelbarrows are being raised or lowered. This is accomplished by a simple shifting of the gears to make the drum work either



Lowers one Barrow while Raising the Other

right or left. This is much more convenient than having to turn the handles first backward and then forward in raising and lowering the loads.

This derrick is portable, therefore easy to set up. A small gear which works on the collar around the mast swings the booms right or left to the exact position wanted.

For any contractor who builds two and three-story buildings, this derrick will pay for itself within a short time.

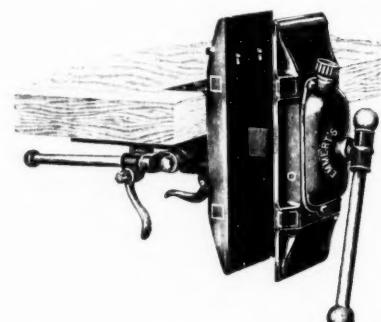


### A Woodworker's Vise of Many Uses

The ordinary bench vise does very well for common ordinary work, but the cabinet maker or pattern maker needs something more. More often than not, work has to be done at an angle. It is fine work, too, and must be held solidly or the job is bungled.

A universal vise has been perfected which can be rotated to any angle and set firmly at any desired inclination.

The accompanying illustration shows one of these vises fastened to the edge of a woodworker's bench and with its jaws set in their perpendicular position. These jaws



Vise Jaws, will Rotate to any Position

can be swung in a complete circle, yet can be set and held solid at any angle.

Hundreds of these vises are already in use in the localities where they have been introduced and it is only a matter of time before all skilled woodworkers will do their work easier and better with the help of these universal vises.



**Our Readers are Requested and Urged to Make Free Use of These Columns for the Discussion of all Questions of Interest to Carpenters and Builders**

### Mistakes of Builders and Architects

To the Editor: Cincinnati, Ohio.  
As a supplement to your fine books on drawing, I think a series of articles on mistakes of builders and architects in your valuable paper would be generally appreciated. We all make them.

I remember a friend who built a dog house in his cellar, and had to take it apart to get it out.

The City of Pittsburgh, I believe, built a public bath at a cost of several thousand dollars. When nearly ready to turn over to the city, it was found that no provision had been made for water in the building.

A late number of the AMERICAN CARPENTER AND BUILDER shows the mistake of a contractor in building a house so close to the front of lot that the front steps could not be put in properly.

A short time ago, I drew plans for a building, with the expectation of doing the carpenter work by the day. After drawing plans, I found that there would not be room enough on 2nd floor to get in stairs, chimney, and door in same room, as these came in or along same partition and left only 22 inches for door. By leaving out brick partition between flues and using flue tile, I could get a 2-foot 4-inch door in. As there seemed to be great anxiety on the part of the owner to get started, I had the plans approved by the building department, expecting to make the flue narrower than plans. After doing more than one hundred dollars worth of work on house I found that owner had no money, and did not own lot on which he was building, therefore could not get a loan from anyone. I quit work; the house still stands as I left it. I do not intend to do any more on it, so that whoever in the future completes it will work according to the plans, and find no door space when he gets to 2nd floor. This shows that several mistakes were made. First, I should have known that he had the money, or was going to get it; second, I should have changed the plans so that everything would be clear, and not had half the construction on paper and the other half in my head.

I do not think that any client in the future can get in such hurry with me that I will neglect to do things so that nobody can take plans and work from them.

If you consider this of sufficient interest, ask the other writers to tell of their mistakes. "Confession is good for the soul." I feel better right now since I have gotten this out of my system.

THOS. CLEPHANE.



### Good Rule for Furnace Sizes

To the Editor: Vandalia, Ill.  
Your "Adventures in Heating," by Cecil F. Herington, which have appeared in the last two issues of our magazine, have greatly interested me, especially the last treatise on the subject. I have a rule for determining the grate area, which gives results very close, to those given by Mr. Herington.

**RULE:** Multiply the number of cubic feet representing the volume of air to be heated per hour, by the number of times you wish to change the air per hour, (usually four times); divide this amount by 100; the quotient will be the required grate surface in square inches.

Using the same dimension of house as Mr. Herington gives, namely 25 by 30 with two stories of 10 foot height between floors, I find the cubical contents to be  $25 \times 30 \times (10 + 10) = 15,000$  cu. feet. Applying the rule, the grate area is:

$$\frac{15,000 \times 4}{100} = 600 \text{ sq. in.}$$

The corresponding diameter is (as his fire pot was circular)

$$\sqrt{\frac{600}{\pi}} = 27.6 \text{ inches}$$

This rule is short, and easily remembered. C. J. SHANOCK,



### Another Bench Clamp

To the Editor: Adrian, Mo.  
I am herewith enclosing a pencil sketch of a bench stop, which I think is better than the one shown in the April

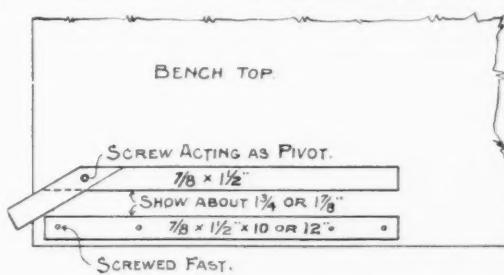


FIG. 1.

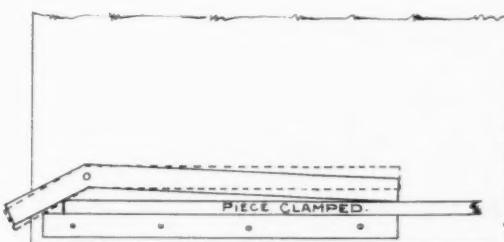


FIG. 2.  
A Wooden Bench Clamp

number of the AMERICAN CARPENTER AND BUILDER. This clamp, if made rightly, will clamp anything up to two inches thick and six inches wide.

R. A. REYNOLDS.



### Wants to Build Fireless Cooker

To the Editor: Granfield, Okla.  
Can any of the readers of the AMERICAN CARPENTER AND BUILDER tell me how to make a fireless cooker?

WILL F. JONES.

### Mr. Godfrey's Boring Machine

To the Editor: San Rafael, Cal.  
Say, please is J. H. Godfrey, Equality, Ill., to tell us some more about that boring machine he mentioned in the February number. 15,280 holes in nine hours! That certainly is going some. Ask him if he bored through bunches of shingles and then busted the bunches and counted the holes in each separate shingle. There must be *some* kind of a joker in it; because there are only about 32000 seconds in nine hours and he would have to move pretty lively to bore a hole every two seconds. However, we are all ready to learn—not only how to do it but how to make the machine and the sander also.

Looking over my back numbers I found a note I had intended to send you several months ago. In reply to J. P. Montz and Benny Tureaud in the June number. Out here in California, besides the porch, piazza, portico, and all the others mentioned, we have also what we call a *pergola*. If any of the easterners don't know what a pergola is I will try and get a good photo or two and send to you.

In the same number the Editor wants to know what a bungalow is. If we cannot TELL him what one is we can sure BUILD them. Just come along out here your next vacation, Mr. Editor, and we will initiate you into the innermost secrets of bungalow craft as practiced by the original (?) inventors of it. Say, it makes us smile to see some of the cuts that are labelled "bungalow" nowadays.

With the best of wishes to the best of building papers, I remain,

Sincerely yours,

H. J. BLACKLIDGE.

### Mr. Godfrey's Answer

To the Editor: Equality, Ill.  
In answer to your letter of March 4 and also to the readers of the AMERICAN CARPENTER AND BUILDER I will say that, it will be impossible for me to complete the plans for the Sander and Boring Machine mentioned by me in the February number, in time for publication in the April number.

In order to make the building of this machine plain to the readers it will be necessary for me to make a number of

drawings, supplemented with a photograph of the machine.

I have been very busy the past month in building me a new shop and am just now ready to move into it and am so crowded as to be unable to finish the drawings in time. However, the plans are under way and will be on hand for the May number.

Will send you also the floor plan of my shop too, in which my arrangement for economy in floor space is something hard to beat.

J. H. GODFREY, Contractor and Builder.

### How He Builds His Boring and Sanding Machine

To the Editor:

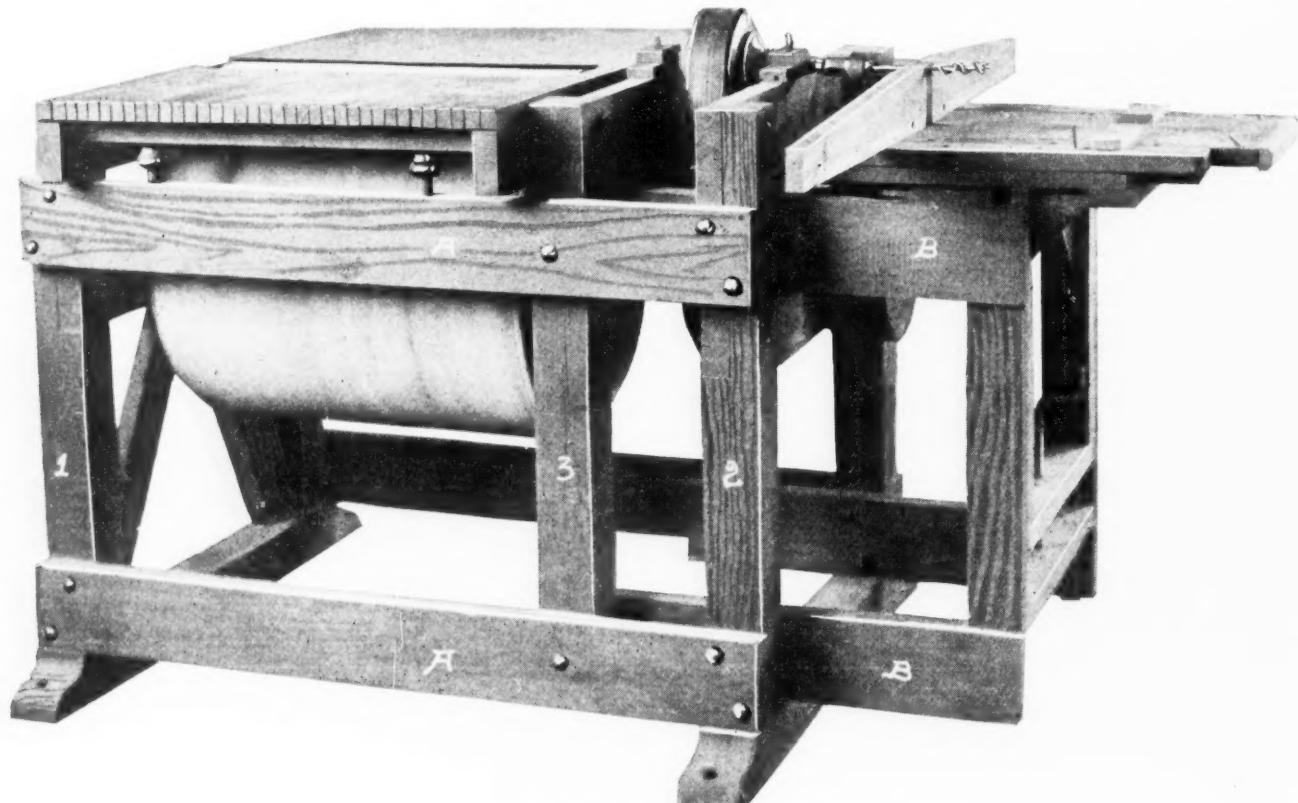
Equality, Illinois.

I am enclosing herewith photograph and drawings of my sander and boring machine. I trust that this will interest and also benefit my brother readers in a practical way. I could hardly do without my machine now that I have got used to it.

The photograph almost explains itself and should be a great aid to the builder. The material I used is as follows:

#### STOCK BILL FOR SANDER.

- 4 cross frames (A)—2 by 6 by 48 inches.
- 4 extension frames for borer table (B)—2 by 6 by 28 inches.
- 2 foot pieces—4 by 4 by 44 inches.
- 6 sets of sand drum segments 1 inch thick for 24-inch circle, each set consisting of 4 segments.
- 6 sand drum spokes, 1 by 3 by 24 inches.
- Sand drum staves, 1 by 1 by 24 inches.
- 2 sander shaft box supports, 4 by 4 by 32 inches.
- 2 borer shaft box supports, 2 by 4 by 32 inches.
- 2 uprights, 4 by 4 by 38 inches.
- 4 uprights, 4 by 4 by 40 inches.
- 1 9-inch sander drive pulley.
- 1 11-inch borer drive pulley.
- 1 7 by 2½-inch face borer pulley.
- 1 wrought steel shaft, 1½ inches diameter by 52 inches long.



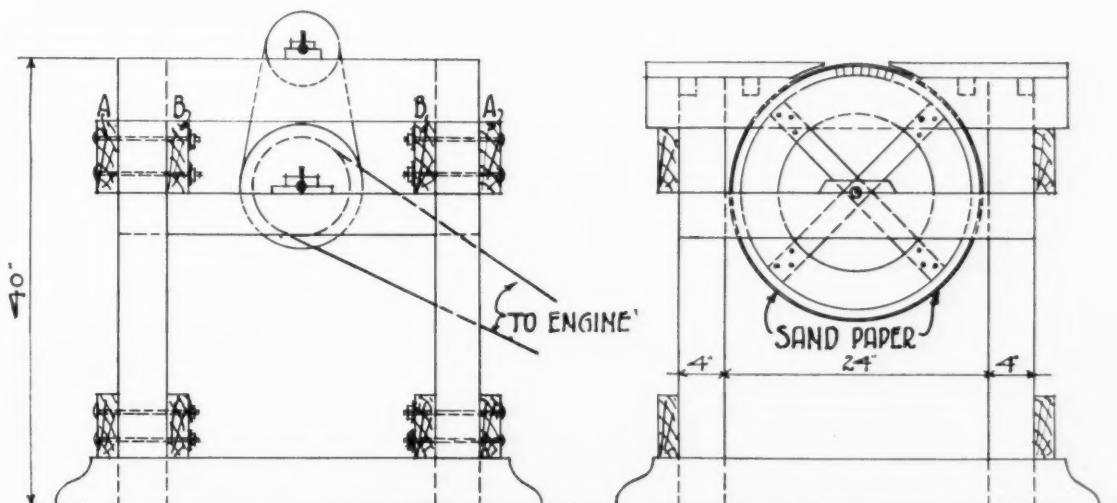
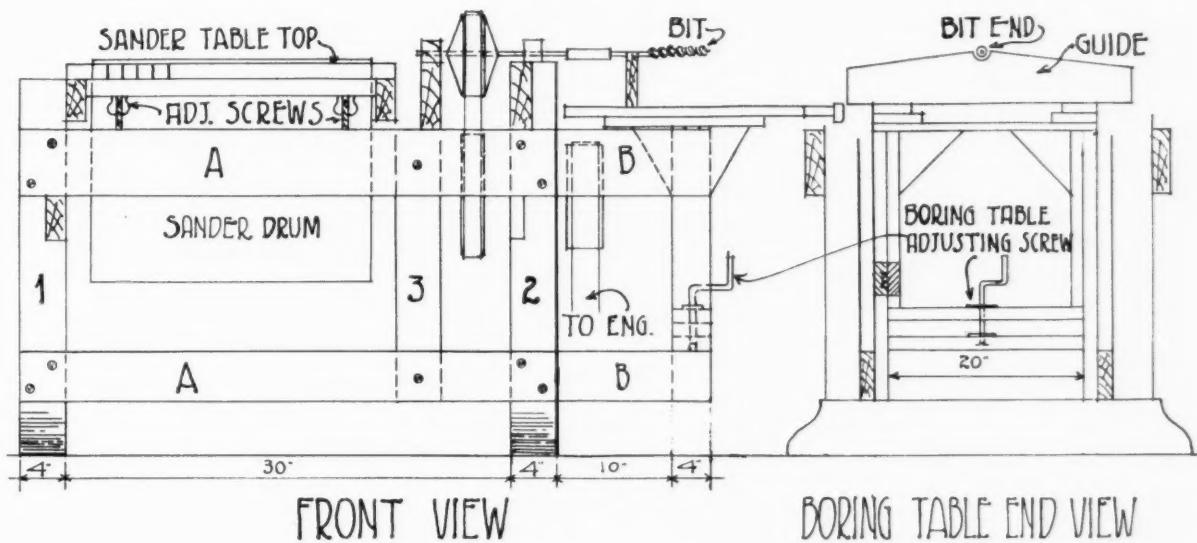
Photograph of Mr. Godfrey's Drum Sander and Boring Machine.

4 adjusting screws for sander table.  
 24 sander table strips,  $1\frac{1}{4}$  by  $1\frac{1}{4}$  by 45 inches.  
 2 sander table supports, 2 by 4 by 41 inches.  
 4 sander table cleats, 2 by 2 by 30 inches.  
 1 crank adjusting screw and plate for boring table.  
 2 braces, 2 by 4 inches.  
 Lumber for boring table.

fasten it into place with 2-inch No. 12 screws.

After drum is in place and started to run, take any kind of a plane and set it very shallow. Then raise table until the drum barely reaches above the table top. With the drum running about 300 revolutions per minute, true up the drum with the plane.

Now cover the drum with an old piece of Brussels carpet,



SECTION THRU DRIVING GEAR

SECTION THRU SANDING DRUM

Working Drawings of Mr. Godfrey's Drum Sander and Boring Machine

I use a 7-inch pulley on the boring machine shaft, which has a  $2\frac{1}{2}$ -inch face and is turned with convex faces on both sides so as to bear against the babbitt boxes of the shaft, and prevent end play. The boring shaft is a common bit brace straightened out and flattened at the part that is inside the pulley. A 1-inch hole was bored through the pulley before turning and the shaft was then centered in the hole as near as possible and babbitt run around the shaft. If not perfectly true, the pulley may be trued after the machine has been assembled and started.

The sander table top is built up of  $1\frac{1}{4}$  by  $1\frac{1}{4}$  inch hard wood strips nailed and glued together to prevent warping. This must be planed perfectly true on top. The sander drum is built up of 1 by 1-inch staves glued and nailed to each other and to the segment ribs and the spokes. At any joint on the sander drum, leave out one stave and afterward

if it can be had, gluing the ends into the slot where the stave was left out. If carpet is not to be had, then cover with two thicknesses of soft deadening felt and one thickness of heavy Canton flannel, smooth side out. Now you are ready to put on the sand paper; which buy in bolts of 50 yards, 24 inches wide. A bolt will cost you about \$3.25 for common flint paper. Garnet paper is better but costs more. Cut the sheets square and long enough to turn down into the slot of the loose stave. Then insert stave which must be narrower than the others and slightly wedged shaped. Screw it down firmly to the drum circle ribs and "lo and behold," you are ready for work.

Keep resinous timber off the sander and you have a machine that you will not want to part with.

J. H. GODFREY,  
Contractor and Builder.

### Another Model Woodworking Shop

To the Editor:

Milton, Iowa.

Looking through the correspondence department in the March issue, I take very particular notice of Mr. Olive B. Extrom's model woodworking shop. In regard to same, will say that he has a nice shop, well arranged, with a few disadvantages that someone is sure to find fault with, no matter how well it is equipped for convenience.

I will be bold enough to tell my dislikes. In the first place, his shop is not quite large enough, but this does not cut much ice as it is a very nice size. He is at a disadvantage in working long stuff for lack of room, though he has his windows so arranged that long stuff can be handled through them. Another drawback is the belting up to his machines. He has too much belting, causing excessive friction, also has to furnish too much lost power. If he had his overhead line shaft placed underneath the shop floor and belt direct to machines, he would notice a great difference in his fuel cost and difference in power that it takes to run the machines, doing away with countershafts which are on the floor, taking up room where space is needed. The overhead shaft is all right but should extend the full width of the shop. It takes

shaft overhead, the other shaft under the floor. To the overhead shaft I belt band saw, moulder, lathe, combination, and any other machines I care to install. To the under floor shaft I belt combination saw table and rip saw table machines only, but have room and power for more. This shaft is carried by large concrete pillows; and shaft does not touch the shop in any way. My two machines are connected directly over the shaft and belted direct with belt tighteners so I can release machine quicker than one can with counter shaft and there is no danger of belt creeping onto tight pulley while changing saws when engine and shaft are in motion. A very slight move of the tightener will put the machines in operation; and this is an ideal place for shaft with these machines, as there are no belts in the way to bother while turning lumber, no countershafts to stumble over; and it is out of sight, except pulleys. There is no danger of frost raising shop and keeping shaft out of line, as same is placed on concrete pillows in proper shape. The engine foundation is large and strong; it does not touch the floor and when the machines are in operation there is not the least vibration to shop or machines—no floor jumping up and down, or boards falling from above. There is just space enough cut in floor to receive belt; these places are fixed in the trap



**Contractor Donaho and his Spic-and-Span Shop at Milton, Iowa**

up no room overhead; it costs a little more, but it is money well spent in the end, so that if one wants to install a band saw or any other belt power machines, he has the full width of the shop to do so. A short shaft places the machines all in a pile.

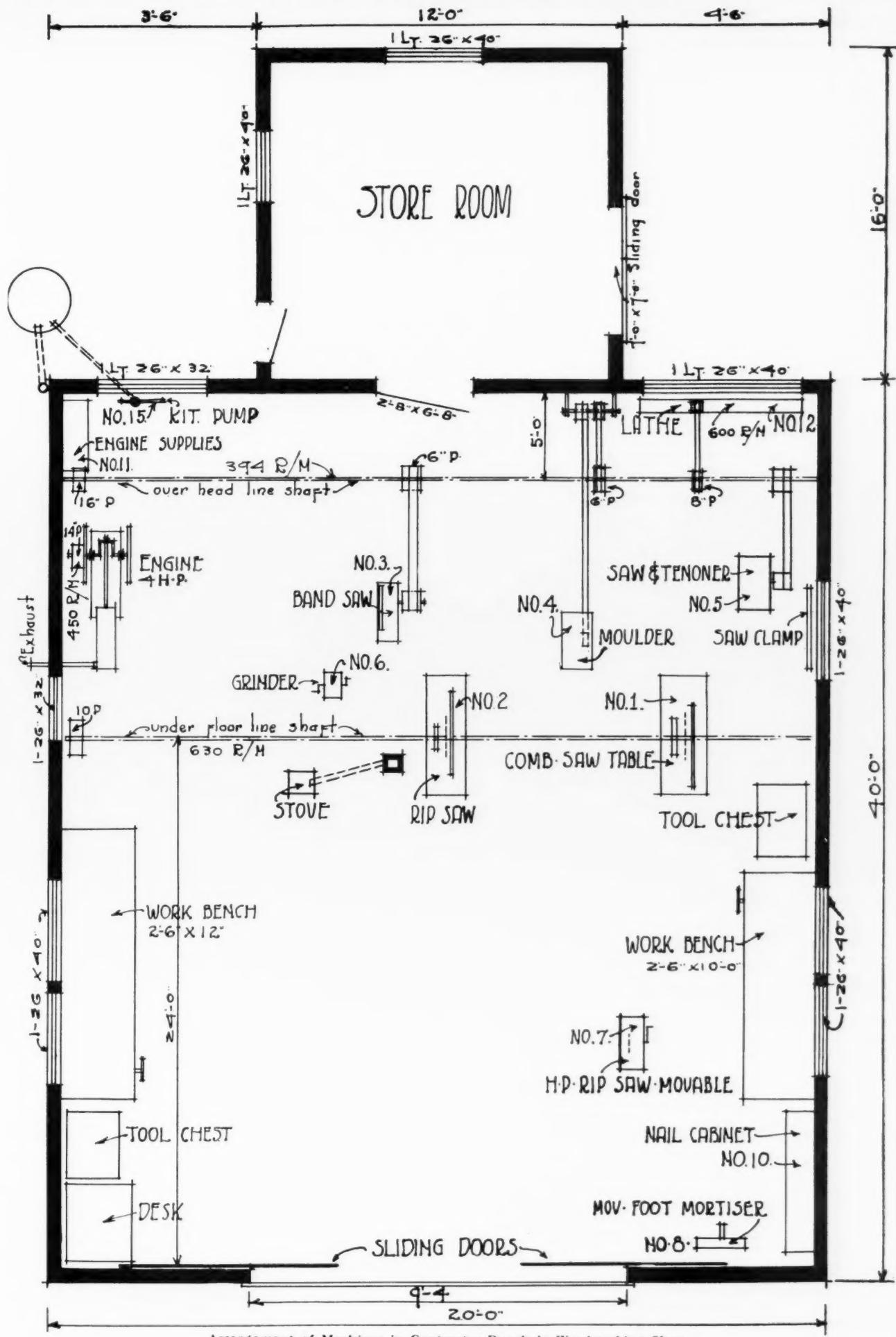
I enclose herewith a rough drawing and plan of a carpenter shop owned and operated by myself. My shop is 20 by 40 feet with 12 by 16 feet addition for a store room. I have a 7 by 7-foot sliding door in one side to receive large frames and furniture. In here I keep my jackscrews, shovels, bars, ropes, hand boxes, etc., and it is worth all it cost. The rear part of the main shop is my machinery department and the front of the shop is the work room. This gives plenty of room to put frames together, make hayracks, or other large pieces. I have built chicken houses, etc., in here in bad weather, as I have a large door in front, consisting of two sliding doors, with windows in same to give light when closed. I also have other windows placed to give the most light.

I have two line shafts in the shop running full width, one

door, so that pulley can be easily belted or changed. I use all-wood or steel split pulleys so that in order to take off or put on you will not have to tear the shaft off.

I am sending a rough sketch of the elevation of shop representing front end of shop showing style of doors when closed. Also shows location of overhead lineshaft and shaft under floors; pillows that shaft rests on are placed between the joists. The joists at this place are set 2 feet apart, the other joists 16 inches on centers. Placing these joists at shaft 2 feet apart, gives one a chance to use large pulleys if necessary. Upper joists in shop are 2 by 6, placed 2 feet on centers. The first 4 feet at the front end is a place to store small trinkets such as nail kegs, pulleys, adzes, scrap lumber and the like. This I find is a very handy place. I have a door in the gable to take up lumber when required. A man does not need a lumber yard in a shop, but can store lots of lumber overhead. In the summer time the stove can be removed and with block and tackle, placed overhead, in front part of the shop and it is out of the way.

I will describe my machines and cabinets. No. 1 machine



## **Arrangement of Machines in Contractor Donaho's Woodworking Shop**

is a combination saw table and has a long spindle on mandrel so I can place a cutter head up to 3 inches on same. This machine I use for ripping, planing, jointing, moulding, or anything I want to with different size and shape cutter heads. No. 2 I use as ripsaw only. I have it placed so that any length stuff can be ripped. With a beader on No. 1 and a fine ripsaw on No. 2, with one man to bead the edge and one to rip it off, they can make 2,000 to 3,000 feet screen mould an hour in 6 to 8 feet lengths. I have done it and can do it again. A man is foolish to buy screen mould when he can make it himself at one-fourth the cost. I make hundreds of feet of mould just out of scrap stuff. No. 3 is a 20-inch band saw which pays for itself every year. No. 4 is a moulder and is very handy in cabinet work; helps a man to do cabinet work in the right way. No. 5 is a combination saw with 2-inch jointer which I use for tenon work for screens. No. 6 is a hand power grinder. This is a good investment. No. 7 is a hand power ripsaw, which is very handy where one has little jobs of ripping to do and saves the trouble of starting and stopping the engine just for a few minutes' work. It beats the old hand saw 10 to 1. No. 8 is a foot power mortiser. This is another great investment. No. 9 is a roll top writing desk made of pine. Any carpenter can make one and it beats a box or spool case nailed to the side of the shop to keep books in. It takes up but very little room and looks very neat for the place. No. 10 is a nail cabinet with drawers and labeled handles from which the different sizes of nails can be gotten at a glance and provides a very nice place for locks, cord, sash pulleys, etc., keeping them out of the dirt, taking up no more room than a row of nail boxes. No. 11 is a handy cabinet with glass doors in front and looking glass in the end, for engine supplies. The mirror is very nice for you can see what is going on behind you when your back is turned. Anyone can make this cabinet with glass doors to keep supplies out of the dirt and it is very neat for this corner, taking up very little room. No. 12 is a 4-foot power turning lathe and is handy in winter time to make chair legs, spindles, chisel handles, etc. No. 13 is a saw clamp placed in front of a window to give plenty of light to file saws and is out of the way. No. 14 is a brad cabinet made to sit on top of a desk out of the way and has small drawers with label holders to label each article. This is about the handiest concern in the shop; for brads, tacks, screws, little bolts and many things too numerous to mention can be kept here, where they can be had at a glance. No. 15 is a small kitchen force pump connected to the well so that water is handy for engine and other work.

My engine sits over in one corner of shop out of the way about 5 feet from the end of the shop and close up to the side. It is a 4 H. P. fitted with friction clutch pulley allowing me to start machinery up slowly. This is a very handy place for the engine as it is free from accidents and is always in sight while in operation, allowing operator to keep close watch on everything that is going on. I keep it under cover when not in use and no one touches it except myself; and I would rather have it open here than to have a room built around it or for it on the outside of the shop.

If a man will just take pride in his shop and take an interest in the same, keep the floor well swept, windows washed, and cobwebs swept down, and have a duster to dust the machines with, a small whisk broom too to keep the dust from settling on things; then keep his engine and machines in apple pie order, he is in a position to receive lady visitors as well as men. There is no reason why a man cannot enjoy life in an up-to-date shop. These little cabinets and writing desk, such as I have in my shop, take some time to build and build them right, but a man had better be doing something like this to improve his shop and make more room for things to keep them out of the dirt than to be down town whittling

on some grocer's store front. Don't let dirt accumulate on anything. It only takes up a little time each morning to sweep the floor. If you have no place for your shavings and can't give them away, they will burn very nicely. Don't wade in shavings up to your knees and then when you drop a pin or nail set you can pick it up without scouring the floor for same.

Now I think I have said enough for one time, but this is not all that I have in the shop, or all that I have to say, having said nothing about clamps, saws, cutterheads, moulding knives and the like. If there is anyone who has a model shop that can come up with mine, let me hear from him and show the goods, for this is what we are taking the paper for, to talk to one another. I would like to meet Mr. Extrom in person and have a chat with him.

J. E. DONAHO,  
Contractor and Builder.

### An Answer and a Question

To the Editor:

Grand Rapids, Wis.

I notice that Mr. J. A. Jack of Berber, Cal., wants some ideas on a school house belfry; so I am sending you a photo of a school house which I built in 1912 near here. I planned the belfry, which is a simple design, yet looks well.

I don't know whether you would call it a mission style, but it may be of some benefit to Mr. Jack.

Now for a question;

I would like very much to see published a standard rule for the lighting of public buildings, such as churches, etc. What I want is to know is the proportion in square feet of glazing to the cubic foot contained in the room to be lighted or to the square feet of floor surface in rooms of different height ceilings.

F. G. Rockwood.

A Schoolhouse Belfry

To the Editor:

Spencer, So. Dak.

Since I have seen "Frank's wife's" letter in April issue I too would like to say a few words. Although I expect some of the carpenters will think we women are trying to get into "their own" paper.

I know it wouldn't do to have a receipt for spice cake and a sure cure for earache, along with the correspondence, but if the Editor knew how many of the carpenter's wives read every bit of the "Building Paper" they wouldn't care if we did write.

My husband is a contractor and builder and does most of his own drawing, and that little den of his is just the same as the one in Frank's wife's home. But husband doesn't always stay there, he comes into the living room and has papers and plans all over both rooms. But as he often is away for weeks at a time it seems good to have him at home.

She asks what other wives do to help. Well I often copy lumber and hardware bills. Write to advertisers in the AMERICAN CARPENTER AND BUILDER and a few other papers he takes, look up prices in his millwork book, and help keep his books. As he always has from six to ten men working for him I help keep his time books too. Then when we are through we both have a romp with the babies. I don't go many places as I'm busy most of the time but I always read your paper, and we sure like it.

Well I'm baking bread for my carpenter's dinner tomorrow so had better be looking after it. Hope to see this printed although Max says I won't.

MRS. MAX SAMP.

### While the Bread Bakes

## Hoisting and Placing Concrete at Low Cost

To the Editor:

Brooklyn, N. Y.

On large buildings by present methods, concrete is being raised and placed at a low yardage cost. The most modern method is of spouting by the use of a tower with metal or wooden troughs. While this is of advantage on work where the yardage is great, this method cannot be applied with economy on residence work, silos, on other structures with thin walls and where the amount of concrete to be poured is comparatively small, as the spouting system entails a somewhat elaborate and costly equipment, and the transfer or movement of the spouts to deliver concrete at the various parts of the building often brings the placing cost to a prohibitive figure.

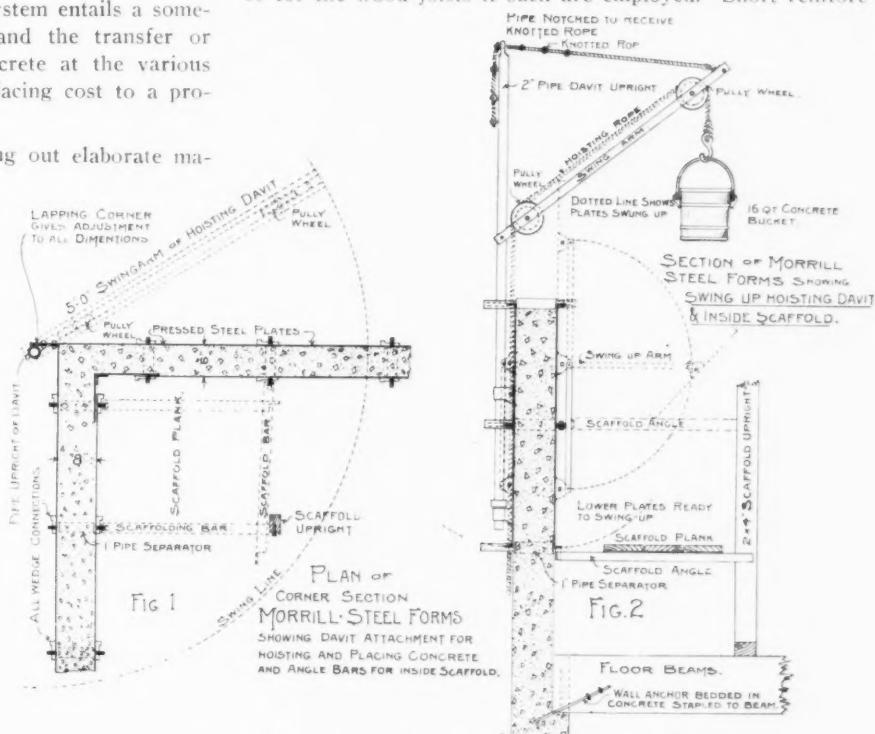
A simple inexpensive equipment, cutting out elaborate machinery would seem necessary. Milton Dana Merrill, the Washington architect, the inventor of the Merrill steel forms, has devised and developed a simple hoisting davit which would seem to fill a considerable need in the lighter forms of buildings. This davit is illustrated by sketches herewith shown.

Figure 1: Plan of a corner section of the steel forms is illustrated showing this davit, as an attachment to be moved or raised as the work progresses. A two-inch pipe upright is clamped by wedge connections to the corner plates, being arranged to swivel and to turn easily. A swing-arm is attached to this pipe upright, or boom made up of two light channels with ball bearing shelves for hoisting rope. From the end of this swing arm, a knotted rope or guy passes through the notched head of the pipe, permitting the lowering or raising of the arm or boom. This davit swings out upon the mixing board or to the mixer. The heavy sewer buckets containing sixteen quarts are filled and hoisted, after which the davit is swung to the desired point and this concrete dumped into the forms. The hoisting rope passes through a snatch block pulley attached near the ground; the bucket is raised by hand by a friction drum on the mixer or by horse. After the pouring is completed at one point, this davit is unclamped and moved, being attachable at any point. This hoist is of such a simple inexpensive type that several of these davits can be utilized, if desired, simultaneously, raising the concrete at various points.

A light system of interior scaffolding is supported on scaffold angles, nailed to uprights 2 by 4. These angles are below the forms themselves. This permits the steel forms to be easily swung up into tiers of from 10 to 15 plates at one operation, thus permitting 3 or 4 men to raise and place a section of from 40 to 60 sq. ft. of forms in a few minutes. The outside forming is swung up in the same method by this ingenious system of swing arms. After the forms are raised, additional scaffold angles are attached, the scaffold planking replaced above ready for pouring the next tier. Unskilled labor is largely utilized, and by these simple wedge connections, the forms come automatically and rigidly into line. At each corner where four plates join, a pipe separator is utilized through the wall. These pipe separators are knocked down and removed as soon as the forms are raised and the holes

are pointed. By this method the plates are removed from the wall upon the day following the pouring. At this time, it is possible to go over the exterior surface with a wire brush, exposing to view the aggregate or to float this with sand and cement, leaving a plain stucco surface. The forms being entirely of pressed steel, leave a slight raised joint or mark dividing the walls into 2 ft. panels. On many buildings this has been left, forming a somewhat decorative effect.

At each story height, the walls are offset on the inside, giving a slight ledge for support of the concrete floor slab or for the wood joists if such are employed. Short reinforce-



Working Drawings of Economical Concrete Method

ing bars being first bedded in the wall with the end projecting upwards. After the removal of the forms, the ends of these bars are bent out, the joist placed and this wall anchor is tied to the beams by staples. Certain plates for corner adjustment have perforations where the metal is partly punched through. By this arrangement these corner plates are permitted to lap past, thereby the equipment is made adjustable to buildings and walls of various sizes and dimensions, no special size corner or filler plates being employed. Window and door frames are built out to the thickness of the wall, and dropped into the forms, a saw cut being made back of the frame into which is set a tinned or galvanized iron strip. The concrete is poured about this, making a joint proof against air leakage which might afterward result from shrinkage of the wood frames. Where interior furring is desired, wood blocks with a nail projecting downward are dropped into the concrete at the end of the day's pouring. To these blocks vertical furring strips are afterwards attached. The steel form plates are of  $\frac{1}{8}$  inch thickness, pressed into flange sections 2 feet square, and are practically indestructible, and can be used 100 times. These are thoroughly cleaned and oiled each time they are raised, which gives an extremely smooth finished surface. By this swing arm system, an equipment for any height wall need only be two tiers or four feet in height, and the average cost for placing, removing, and cleaning forms is reduced to  $\frac{1}{2}c$  per superficial foot of forming. H. A. TROU, Supt. of Construction, for Read & Merrill, Inc.

## To Build an Octagon on Top of Another Roof

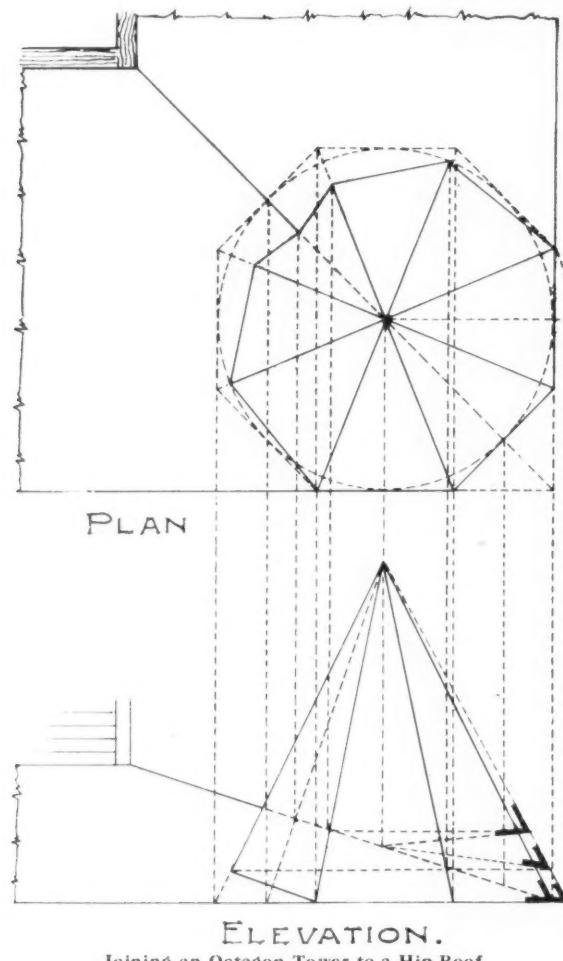
To the Editor:

I would like a sketch of how to connect an octagon roof to the corner of a piazza roof. The latter has a rise of four inches to the foot and the former has 24 inch rise to the foot. I want the cornice to show alike all around the piazza; the main piazza roof has a hip running directly into the octagon. What I want to know is, how is the best way to frame it.

D. W. CLARK.  
General Contractor.

Answer: The best way is the easiest way and that is to frame the octagon in the regular way, letting the octagon hips run to an octagon form set on a level with the piazza plate; then continue the piazza roof up to the octagon, letting the roof line intersect the octagon where it will. The ceiling of course will conceal the octagon form or plate from view, thus solving the problem and yet leaving the cuts in the main regular.

On the other hand, if the question has reference to setting the octagon roof on top of the piazza roof, then the subject furnishes a real problem that will tax the ingenuity of most carpenters. The simplest way then for the ordinary man not versed in the higher mathematics, is to proceed by dia-



gram, which may be done as shown in the illustration, which we trust is sufficiently clear without going into detail description for the lengths. However, to obtain the proper cut on the end of the rafters to fit to the roof, furnishes a problem of no small means. It may be arrived at by scribing or by diagram. We have treated on this by the latter method in other recent articles and will not take it up now.

We wish to call attention to the piazza hip which shows that it runs out to a common corner and the rafter should

Sea View, Mass.

be cut and placed as though it did, but at the point where it passes over the outer plate, it should be cut back and framed into the side of the octagon. The ceiling will miter on this hip and at the corner it will show a little gable, the width of which will be equal to the side of the octagon.

A. W. Woods.



## How to Refinish an Old Floor

To the Editor:

Flora, Illinois.

I want to answer the cry for help of Mr. Wm. E. Ware, of Colon, Michigan, in your April number who, like many others is up against the problem of refinishing an old floor.

I am an old painter and decorator and do not mind passing along the solution to some of these troublesome problems. Here's how:

Get at the grocers a 5-cent box of Gold Dust or Pearline washing powder and dissolve in a gallon of hot water. With a paint brush and this dope go over one fourth of the floor with a heavy coat. In from ten to thirty minutes the old varnish or oil will be reduced to soft soap and the wood can then be wiped up bare and clean with a sponge and clear water. Should there be any discoloration of the wood after all the old finish is entirely removed it may be bleached out with a ten per cent solution of oxalic acid. Allow the floor to dry, then sand paper smooth and dust off.

Wipe up with a rag dampened with gasoline or turpentine to get rid of all dust; stain the cherry strips with burnt sienna ground in oil and thinned with turpentine and dryer. Finish with two coats of alcohol shellac and two coats of floor varnish.

W. L. SMITH.



## To Find the Length of Hip

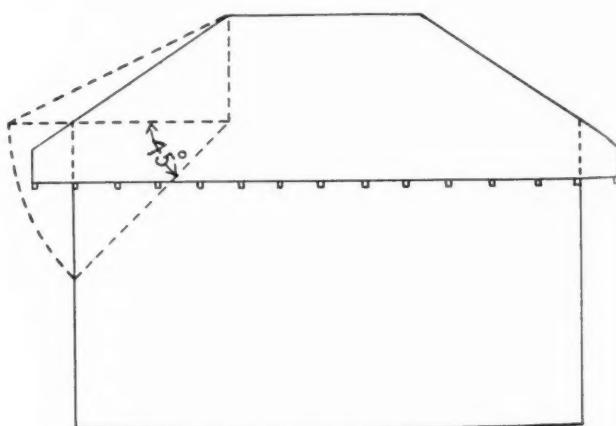
To the Editor:

Victoria, B. C.

I herewith enclose a sketch of a roof for which I had some trouble in getting the length of hip rafter. Will Mr. Woods show me how to get the length of the rafter by scale? I have not seen anything published on this particular kind of roof. Your paper is very helpful and up-to-date. J. NOTMAN.

Answer: The fact that the sides of the roof drop lower than the end of the building, should not be allowed to bother in the least, as far as getting the length of the rafter is concerned. Therefore, as the roof is of the same pitch, it can be treated in the usual way for a square cornered building. The only difference being in the plumb cut of the seat, which should be a diagonal cut one way only and at a point to catch the measurement point at its center, reckoned from a line along the center of its back. The center of the seat should rest on a line parallel with the top of the common rafter and catching the outer edge of the plate of same.

There are conditions in the backing of the hip which should



To Find the Length of a Hip

be understood and to which we refer to our article for this month, which treats on that subject.

Now, as to getting the length by scale, just remember that the run of the hip (for a square corner) is  $5/12$  greater than that of the common rafter; that is, for every foot in run of the common rafter, count one foot and five inches for that of the hip. If there happens to be odd inches in the run, count one and five-twelfths inches for each inch. Thus the rise remaining the same as the common rafter, its length may be easily obtained.

This is nicely illustrated by adding the dotted lines, as shown in the elevation.

A. W. Woods.



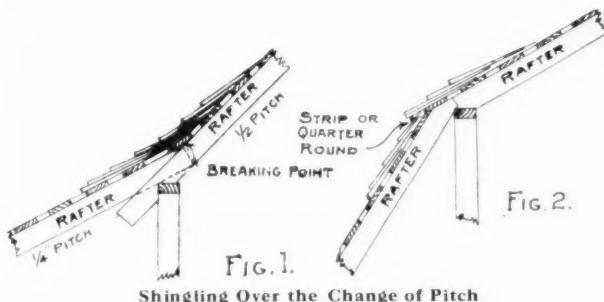
### Water Tight Floor; Also Good Shingling

To the Editor:

Centralia, Ill.

In the March issue, C. B. Jay asked how to make the upper floor of a double decked porch so it will not leak. Now, that is not such a hard proposition to handle. There are several ways that it can be done, depending on how much trouble and expense he wishes to go to. The simplest, and at the same time a very effective way, is to use a good grade of flooring, preferably edge grained yellow pine, without bark or sappy edges, and thoroughly dry. The softer kinds are too much affected by the weather, wet and dry. If it is not dry, spread it out and expose to the sun for several days before using. When laying, prime the edges with a good lead and oil paint, making it thin enough so it spreads easily. The best way to do this, is to take three or four boards at a time, with the edge up, hold together with one hand, and manipulate the brush with the other. Not tomorrow, but right now, as soon as the last board is laid, give the surface a thin coat of the same dope, being careful to brush it well into the wood; that is what does the work. This thing of giving "a lick and a promise," as some painters have a habit of doing, laying it on like one would enamel, is not what it is cracked up to be for a good durable job. If rightly done at the start, and kept in paint afterwards, there is no good reason why this should not keep it from leaking.

Another way is to lay a double floor with a good water-



Shingling Over the Change of Pitch

proof paper between them or why not cover it with a good grade of felt roofing. It will endure an indefinite amount of walking on, and will not interfere with its use as a porch.

Answering W. F. Collins, in the March issue, "Should all nail heads be covered in shingling?" I would say emphatically, Yes. Care should be taken not to expose them below the shingles, but also, not to get joints over them, when laying the next course. When water gets to the nail, it will rust and eat up the wood around it; anyway, in this part of the country and cause leaks.

In answer to question number two, tight shingling over a change of pitch, I show a sketch (Fig. 1) which explains itself. A little fore-sight here goes a good ways toward making a job. Nail a sheathing board right over the break, catching both rafters the same, then another one above and close to it, this will give good nailing chance. Use mostly narrow shingles, and those on the outside of the bunches,

which are already curved; do not try to pull them down too tight, for you will either break the shingles or pull the nails through, which will spoil the whole thing.

Fig. 2, showing the opposite break to Fig. 1, as in gambrel roofs, is really a good deal harder proposition to get a good tight, snow-proof job.

♦ AUG. C. SCHNAKE.

### To Find the Cut for Brace

To the Editor:

Spokane, Wash.

Enclosed you will find a sketch of a tower frame which I would like to have you explain in the AMERICAN CARPENTER AND BUILDER, how to get the length and cut for this kind of brace.

J. J. STEFFENS

Answer: The sketch shows the brace with a run of three feet and with a rise of seven feet; as shown in Fig. 1. Therefore the diagonal of this must represent the length of the brace which is found to be practically 7 feet  $7\frac{1}{8}$  inches. Now, as the brace is to be cut from a 6 by 6 piece, by laying off the above length on a diagonal line across the face of the timber, as shown in Fig. 2, this will represent the working line to which the steel square can be applied (with the proportion of the run and rise) to obtain the cut as shown.

A. W. Woods.



### Hairing Lime Mortar

To the Editor:

Gashland, Mo.

In answer to W. T. Reamy's question, "when to add the hair," will say: Place hair on flat surface, beat up the lumps. Soak hair in water and when the lime is in good slake, scatter the hair in and work it all through the lime, pushing hoe away from you until you have mixed the hair in the lime. Lime will not destroy the hair.

The AMERICAN CARPENTER AND BUILDER has come in good turn since I received it, but is only forty years too late in its coming.

♦ C. E. A. KNAUSS.

### Wants Rare Woods for Table Top

To the Editor:

Hillsboro, Ohio.

I am making a table top of as many varieties of wood as I can secure. I now have 181 varieties. If any fellow reader has any of the following or any other rare wood, I would like for him to send me a small piece—2 by 2 by  $\frac{1}{4}$  inches thick would do, or larger if possible: Grenadilla, Perambuc, Teak, Palm, Laurel, Banana, Koa, Eucalyptus, Devil wood, Cocoa, White deal, Chinquapin, Prune, English walnut, Live Oak, Brazil wood, Date, Silver Birch, Almond, Tea, or any other rare woods.

♦ THOMAS BROWN.

### He Guesses 25 Feet

To the Editor:

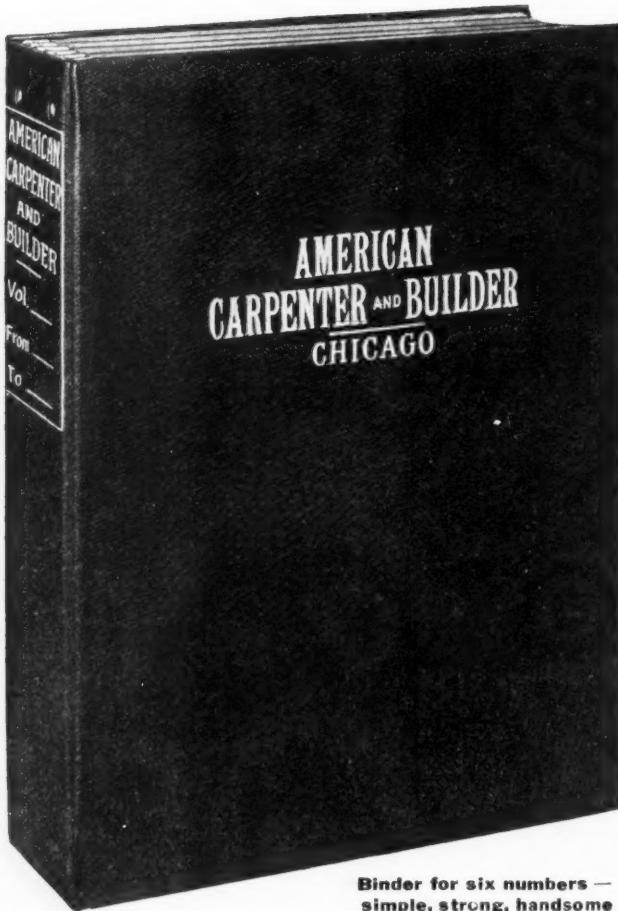
Kane, Pa.

I will be glad to give an estimation on the height of the gallows frame for mining shafts as Mr. H. P. Douglas described it in last issue. I would judge from the photo that it is about twenty-five feet high. The reason I think so is I judged the upright boiler to be about eight feet high; then if the boiler is eight feet high, the frame is a little more than three times the height of the boiler; so my estimation is twenty-five feet to the center of crown pulley.

J. W. MENTER.

# Here Is a Binder For You

## Bind Your Magazines



Binder for six numbers —  
simple, strong, handsome

This is a worthy Binder for your copies of the American Carpenter and Builder. Vol. XIV just closed with the March Number.

An elaborate Index to its entire contents was sent you last month.

Paste it in the front of the Volume. Help yourself to this Gold Mine of practical information and help for builders.

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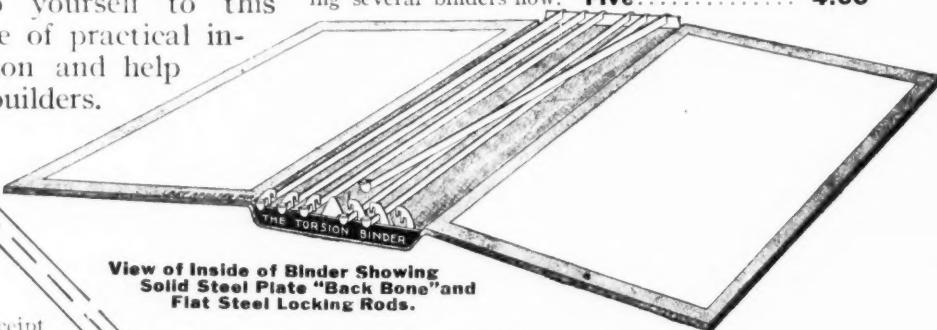
**You Will Like these Binders.** Each one holds six numbers (1 volume) of the American Carpenter and Builder. We have had them made up in huge quantities and accordingly at a very low price—and now offer them to you at cost—as we want every reader to preserve his copies and refer to them constantly.

Bind up the back numbers you have—Vol. XIV has just been completed—And start now to bind each number as it reaches you. You can save a considerable amount by buying several binders now.

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PREPAID



View of Inside of Binder Showing  
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Each one of these rods is slipped through the middle of a copy of the magazine and is quickly and easily snapped fast. There is no punching, cutting or mutilating whatever. Each copy is bound in snugly—yet can be opened absolutely flat. Keeps your magazines clean and fresh—and right where you want them for ready reference.

**While They Last at These Prices—Hurry, They Are Going Fast**

### Construction for Curved Church Ceiling

To the Editor:

As I have been a subscriber to your valuable magazine for some time, I would like to have your opinion on the enclosed sketch of a truss for a church roof. I would like to know if this truss is strong enough for this part of the country. It snows a lot here, and there may be as much as 5 or 6 feet of snow on the roof at times. Building is of frame construction with lath and plaster interior. Studding and rafters are 16-inch centers.

If you can give me a better plan to use in trussing this roof, kindly advise me.

W.M. J. BOLL.

Answer: We have examined the sketch of your roof truss,

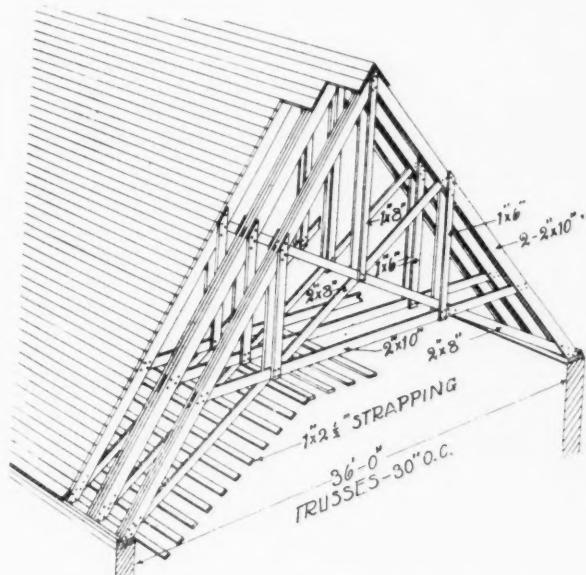


Fig. 1. Truss Construction for Curved Ceiling Church Roof

and find that it is out of the ordinary method of construction, and that it does not follow any of the general types of trusses used in such a location. We believe that you will be able to save material by using a standard type of truss and still produce the same result as desired in the truss shown. Truss members which are full size at ends and cut down to one-half size in some other section, are not economical. The two illustrations shown here will give you an idea of what is generally used in cases similar to yours. The curved ceiling may be built by nailing 1-inch boards cut to the shape desired, onto the lower chord of the trusses shown.

Figs. 1 and 2 show two forms of "scissors truss" which may be used for spans between walls as indicated. The dimensions of timber are taken from Kidder's Building Construction and Superintendence and represent approved practice.

When the span of a roof does not exceed 35 or 36 feet, the roof and ceiling may be constructed by spacing the rafters

from 24 inches to 32 inches on centers, and trussing each pair of rafters as shown in either Fig. 1 or Fig. 2. Fig. 1 is for 30 inch spacing, while Fig. 2 is for 24-inch spacing. The dimensions shown in these figures are the smallest that should be used for a shingle roof of the span given. No purlins are needed in this type of construction.

Wood ceilings may be nailed direct to under side of trusses, while in lath and plaster construction, the furring strips or strapping for holding the laths is nailed to the trusses. Curved ceilings are easily constructed by nailing on curved templates in the same location. The rise of the roof where trusses of the kind shown are used, should be at least 10½ inches in 12 inches.

EDITOR.



### A Time Check Question

To the Editor:

Beaver Creek, Minn.

I have been a reader and subscriber to your valuable magazine for a number of years and always appreciate the hints I find in its columns.

I am writing to you this time for some information which you or some subscriber can undoubtedly furnish.

I use the enclosed time check for each employee, which shows the hours worked for separate jobs.

## TIME CHECK

N. N. KAHLER

M. L. J. Gibson

WHERE WORKED	CONTRACTOR AND BUILDER						Total Time per hr	AMOUNT Dol. Cts.
	S	M	T	W	T	F		
E. Cummings		8						
F. Loose		2						
H. Davis			4					
H. L. Rowka			6					
J. D. Crawford				10	10			
T. Grout						10		
F. Gilbert							3	
D. Jones							5	58 40 32 20

What I want is a satisfactory method of recapitulating these time checks, so that the record will show each job separately and each employee's time for that job.

Any method that you know of, or that some subscriber has found to be practical, would be appreciated. I wish you would kindly publish in your next issue.

I have tried various methods, but believe you can suggest some form that will be both practical and convenient.

N. N. KOHLER.



### The Gambrel Roof Question

To the Editor:

Moline, Kansas.

Will you please publish the best proportion for general roof pitches?

I think this a good question for the craft to answer.

GEO. H. CRANER.



### Questions About Plate Glass

To the Editor:

Myrtle Point, Oregon.

Can you give me any information in regard to the handling of large plate glass, the way they are handled, the amount of room allowed in sash for expansion of glass and the best way to stop a check when it starts? I imagine a description in the AMERICAN CARPENTER AND BUILDER would interest lots of us. THOS. E. DICKSON, Contractor and Builder.

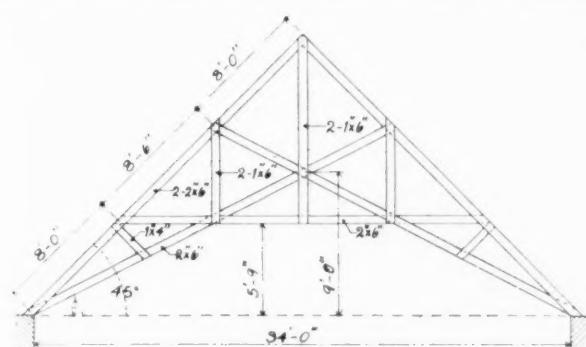
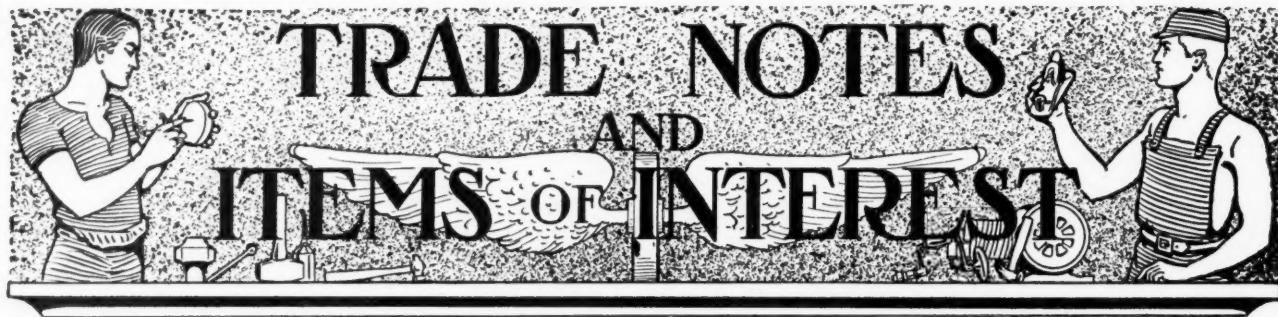


Fig. 2. Another Scissors Truss



Through this department the editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

### Ohio Manufacturers Escape the Flood

OUT of the chaos resulting from the floods that have recently swept the Ohio and Indiana valleys come encouraging reports from manufacturers. While the property loss runs into the hundreds of thousands of dollars, the news that manufacturing activities were suspended seems to be grossly exaggerated. A great number of factories escaped the devastating effect of the water owing to their fortunate location on high ground. A few suffered a temporary shutdown while others continued operations through the worst part of the flood.

M. J. Gibbons, Dayton, Ohio, manufacturer of modern heating, plumbing and water supply systems writes us that while his plant experienced some loss, he is now in a position to take proper care of all orders without delay. Business will be carried on as usual and the city being restored will surpass the old Dayton in every way.

The Sidney Tool Co., Sidney, Ohio, makers of the well-known "Famous" woodworking machines escaped damage. Their factory is located on high ground and was out of reach of the water that covered the residence district. Business is fast regaining its usual swing and no delay in the filling of orders is experienced.

The Miami Cycle & Mfg. Co., Middletown, Ohio, who make the famous Flying Merkel motorcycle write that they are still doing business without interruption at the old stand. The flood never touched 'em.

E. C. Atkins & Co., Indianapolis, Ind., whose Silver Steel Saws are favorably known to the building trade did not have to shut down their factory at all. They have their own lighting and water system so their business was not interrupted. All orders and inquiries will receive prompt attention.

From the Evansville Business Association comes the good news that the city of Evansville, Indiana, is in excellent condition. Contrary to wide-spread reports no great portion of the city was flooded. Out-lying portions nearest the river banks suffered most. Factories and public utility plants were not forced to cease operations, and Evansville is injured only so far as obtaining supplies from nearby flooded districts is concerned. Incidentally it might be mentioned that the big State Sunday School Convention will be held in that city June 17, 18 and 19.

Reassuring reports at hand from Cincinnati state that the Edwards Mfg. Co. and the Parks Ball Bearing Machine Co. are doing business as usual. Geo. H. Bishop & Co., Lawrenceburg, Ind., write "high and dry." From Middletown, too, comes word that the Middletown Machine Co. and The American Rolling Mills escaped damage. The Stark Rolling Mill, Canton Foundry & Machine Co., and the Union Metal Mfg. Co., all of Canton, Ohio, hasten to assure us that their facilities for taking prompt care of business are unimpaired. The Majestic Furnace Co., Huntington, Ind., write "our furnaces are keeping the town warm." At Columbus, Ohio,

the devastation was not great, so the Jaeger Machine Co., Ohio Tool Co., and the J. Leukart Co., are keeping their usual prompt schedule in shipping orders. The W. H. Mullins Co., Salem, Ohio, write us "Still on top and doing business in the same way," while the Crescent Machine Co., Leetonia, Ohio, say that their factories are working overtime to keep up with the demand for their wood working machines. So, on the whole, they are a cheerful lot and look forward to better business than ever before. It certainly looks as if all the manufacturers in the flooded zone are on their feet and looking out for their customers' interests.

It is certain that a great deal of mail was lost or destroyed in this flood so if any of our readers have not received replies to letters addressed to manufacturers located in the flooded districts, we suggest that they write again. Full confidence may be placed in the ability of these people to make good and give full attention to all orders or inquiries.



### Reliable Shingle Stains

Over thirty years ago the people of this country rediscovered the great value of wood shingles for siding. Their grandfathers had used shingles for this purpose as well as for roofs, but the introduction of the more prim clapboard gradually displaced the siding shingle until the early eighties when some enterprising eastern architects, seeking a more artistic treatment for exteriors, harked back to the experience of our forefathers. They soon discovered that one of the reasons which had led to the adoption of clapboards was that paint did not look well on shingles because the heavy, opaque coating that it formed did not fit the rough-sawed, variable surface, although it made a smooth, glossy, even coating on the clapboards. But the shingles made a more appropriate siding for the style of architecture then in vogue, and they made a much warmer covering than the clapboards, and therefore, their use grew slowly in spite of the painting defects, the shingles mostly being left in their natural state to weather. Then came shingle stains.

The first shingle stains were made by the late Samuel Cabot, chemist, of Boston, over thirty years ago and they were scientifically compounded so as to avoid the opaque coat-

Davis, McGrath & Shepherd, Architects, N.Y.  
Stained with Cabot's Shingle Stains



ng that made paint objectionable, and to preserve the hingles from decay, because it was clear that paint, by preventing the evaporation of any moisture that got into the hingles from the underside, hastened the decay. The stains were greeted with delight by architects, and one of the oldest of the eastern architects said that they were "the most important improvement in exterior coloring for half a century."

In order to get clear, transparent colors that would color the wood without covering it like paint, Mr. Cabot used the



**Florida Bungalow Stained with Cabot's Creosote Stains**

strongest and finest colors that could be found and ground them in pure linseed oil to the finest consistency possible. Instead of using the ordinary turpentine or benzine vehicle or thinner, he made his stains with a special refined creosote, then an almost unknown article in commercial circles, but now universally known (largely because of Mr. Cabot's advertising), as Trautwein puts it, "the best wood preservative known."

This made an entirely new compound, with strong, durable colors that were soft and beautiful, and a liquid vehicle that penetrated the wood and thoroughly preserved it against decay or insects. One of the strong points was that every ingredient was beneficial to the wood. Another, that they contain more linseed oil to fix and bind the color than the best paint, in proportion to the amount of color. They,



**New York House Stained with Cabot's Shingle Stains**

therefore, wear as long as any colors can, and in the South they actually wear better than paint, because they sink into the wood and do not form any skin or coating on the surface, so that they cannot crack or peel as paint does in that climate.

The tremendous success of these stains brought a host of imitations into the market, but the high quality of the original Cabot stains has always been known to architects, dealers and builders, and they are today recognized as the standard shingle stain. A prominent paint dealer recently said: "They are as standard in their line as white lead."

Cabot's stains are not only unusually non-inflammable, but they actually diminish the inflammability of wood to which they are applied, because the creosote gives off a cooling vapor under heat which retards the spread of flames.

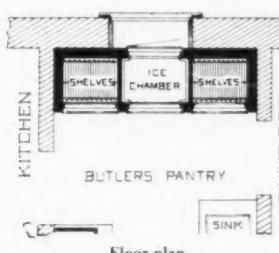
It costs just as much to apply a poor stain as a good one, and the labor item is always proportionately large, so that it is a great waste to try to save a few cents in the first cost by buying a poor stain. All the buildings shown upon this page have been stained with Cabot's stains.

For further particulars address Samuel Cabot, Inc., Boston.

### "Building In" a Refrigerator

Along the line of modern improvements comes the built-in refrigerator, which is proving very popular with home owners and builders. It is one of those little additions that helps to modernize the home and save housework.

The built-in refrigerator has a distinct advantage over others. It is set in the outside wall and a door of suitable size is provided through which the ice can be put in from



This refrigerator is 6 feet 6 inches wide by 2 feet 2 inches deep by 4 feet 5 inches high. It is lined with opal-glass and the exterior is finished in white enamel to match the surrounding wood-work.

It is located in the butler's pantry between the kitchen and the dining-room and has a rear door for icing opening to the porch.

Floor-plan

the porch. This does away with the tracking up of the kitchen by the iceman's dirty boots and the dripping water from the ice. A built-in refrigerator also makes a house easier to rent or sell.

Many builders leave a recessed space in the outer wall to which an ordinary refrigerator can be fitted. This plan works pretty well but it has some disadvantage. We think it worthwhile to call attention to one of the products of the McCray Refrigerator Co., which will give satisfactory results. This is a regular refrigerator which they carry in stock in various sizes. Those portions which will not be exposed are left unfinished so that it can be set right into the wall and the usual methods for completing the "building in" process followed. Special refrigerators for florists and butchers also.

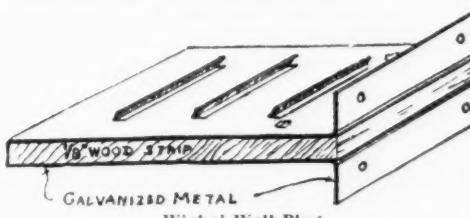
Full details regarding construction and other information may be had by writing the McCray Refrigerator Co., 506 Lake St., Kendallville, Ind., for the two exceedingly beautiful books they mail free to inquirers. These books "McCray Refrigerators for Residences" and "American Homes" also contain plans and instructions for locating wall opening so that a built-in refrigerator may be arranged for outside icing.



### The Common Sense Wall Plug

All will agree that a perfect nailing base in concrete work or masonry is a necessity, so in placing his "Common Sense" wall plug on the market, Mr. M. O. Wicks, 60 Nassau Ave., Glen Cove, N. Y., has really filled a long-felt want.

This wall plug is made of galvanized iron of very fine quality. It cannot rust. The size is 3 inches by 2 $\frac{1}{2}$  inches by 3/16 inch and a strip of wood 3 inches by 2 $\frac{1}{2}$  inches by 1/8 inch is inserted to prevent crushing and also to keep out the liquid cement or mortar. The plug can



be tacked to the forms and the pouring of concrete continued with the certainty that a fine solid nailing base has been provided where necessary. On account of the flanges (the fish hook principle, Mr. Wicks calls it), the plug cannot be pulled out of the wall. It is there to stay. When a nail or screw is driven in, it is gripped its whole length.

Mr. Wicks is mailing a sample of his wall plug to all who ask for it. If you want to see what this wall plug is just write him and ask for sample and descriptive booklet, which are sent free.

### An Experiment with Good Results

We recently had the pleasure of seeing a very artistic and practical dining room in the new and magnificent Chicago home of Mr. H. Chappelle. Most of the specifications were looked after personally by the owner and we must admit that he has shown rare good taste in the selection of materials to produce a clever and unusually harmonious result.

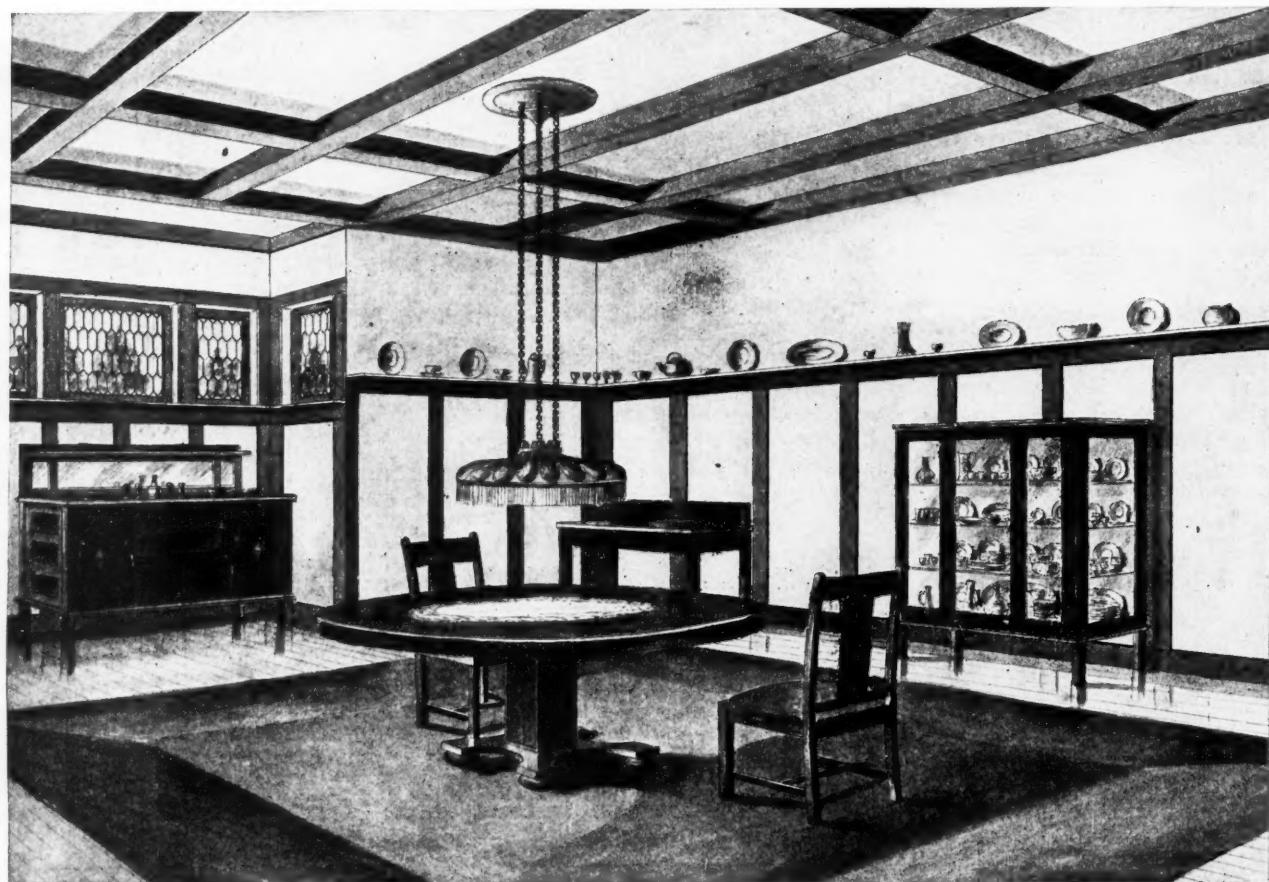
The dining room shown is very commodious and the unique feature is that no lath or plaster were used. Mr. Chappelle chose "Wodwalboard" as the material that would give excellent satisfaction in producing a smooth, even surface that would lend itself agreeably to the beautiful decorations he plans. As he said—"What is the use of following old methods when present day ideas and material are infinitely superior? Take this room for instance. 'Wodwalboard' has

the subject. Anything that simplifies building ought to be eagerly looked into by our friends so it will be an admirable thing to post up on the utilities of "Wodwalboard." The manufacturers are the McHenry-Millhouse Mfg. Co., South Bend, Ind., and we know they will gladly send their booklets and samples to you free of charge.



### Triple A Machine Co. Move

The Triple A Machine Company, well-known manufacturers and sellers of the Triple A Floor Surfacing Machine, are moving into their new factory and offices at Indiana and Franklin Sts., Chicago. This factory will work in conjunction with their original factory plant at Manistee, Mich., to supply the increasing demand for Triple A machines throughout the Middle West.



Dining Room in the Chappelle Residence, Beautifully Finished with Wodwalboard

replaced lath and plaster at less than one-third of the cost. I wanted to get away from the conventional, so as an experiment I tried 'Wodwalboard' in one room. The wall paintings and stenciling I propose having done in every room are too expensive to apply over plaster. In a short time the plaster would scale or crack and the whole effect would be marred. The experiment with the billiard room was so successful that I have used 'Wodwalboard' in every room. My summer cottage now building will be finished with the same material."

Further conversation with this man developed that "Wodwalboard" made the house warmer in winter and cooler in summer; that it made building easier not only by doing away with the muss of plastering but also the delay in waiting for it to dry before decorating could be done. Neither does "Wodwalboard" warp or crack.

A few moments thought suggests to us a dozen ways in which a carpenter or house owner could use this material to good advantage but the manufacturers have covered the matter in a much more thorough manner in their books on

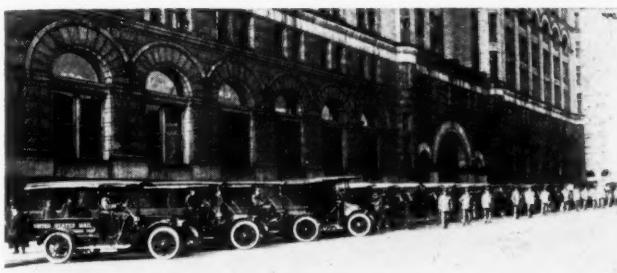
It speaks well for the Triple A floor scraper that growing business has compelled this enlargement. We understand the company are making a special offer on their machines at this time to celebrate this forward step in their business.



### 15 KisselKars for Uncle Sam

The satisfaction of the United States Government with the five KisselKar motor wagons placed recently in the parcel post service of the city of Washington, has been emphasized in the most substantial manner by an order of ten more cars of the same breed.

The new KisselKars will vary from those now in commission in Washington in respect that the bodies will be of the closed panel type instead of screened. The insides are to be provided with hardwood or metal strips on which racks are to be placed for two tiers of hampers or crates. The rear of the cars are to be equipped with doors that can be securely locked. These are to have circular windows. The drivers' seats will have double "lazy backs" so that the carrier may



**KisselKars in the Service of the Washington, D. C. Post Office Dept.**

have ready access to the parcels. The cars are to be painted vermillion.

Otherwise these government KisselKars are the standard 1500 pound wagons with a Kissel 30 horse power motor and the other features that have made this model popular.

Henry Frerk Sons of Chicago, dealers in building materials, coal and feed, have been operating a KisselKar four ton truck for a year and have compiled figures covering that period that are interesting. The truck was in service 263 days and covered 10,241 miles, an average of 39 miles a day. The weight carried per load was 7,225 pounds. One gallon of gasoline was used for each 28 miles and the tire expense per mile was five cents. The truck replaced two teams and a single horse rig. The concern finds the truck of particular value in taking care of distant deliveries quickly, thus widening their trade territory.



#### **Yale & Towne Move Offices**

Announcement is made of the removal of the Yale & Towne Mfg. Co., to their new office building at No. 9 East 40th Street, New York City. This is the twelve story building illustrated. It has been erected by this company and will



**New Yale & Towne Building in New York City**

be devoted almost entirely to the housing of their own offices, exhibit and sales rooms. The location, being in the central up-town district, is in the heart of the hotel section and is easily reached from the railroad terminals or from any part of the city. Yale & Towne Mfg. Co. extend a cordial invitation to all architects and customers generally to visit them when in New York.

#### **Stopping the Flop**

A very neat and compact hinge for use on swinging doors is being manufactured by the Chicago Spring Butt Co., Chicago, Ill.

This hinge mortised into the lower corner of the door is quite inconspicuous. When the door is swung to 90 degrees, the hinge automatically holds it open in that position. The usual vibration or flop of a swinging door is absolutely done away with. When the door closes, it comes to a dead stop on the center line. The weight of the door is carried on ball bearings, the eccentric being equipped with hardened steel roller bearings. This prevents any squeaking. The piston and the compression spring are features in which great perfection has been reached. The method of making these and the quality of



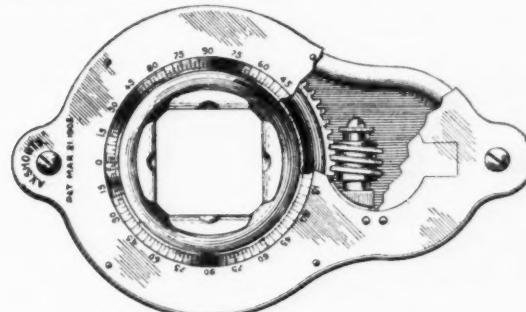
**Chicago Spring Butt Floor Hinge**

the material used insures long life. The spring can be loosened or tightened, thus adjusting the tension.

The illustrations give a clear idea of the hinge proper and how it looks set into the door. As this is something that is very necessary to the modern swinging door, we are glad to suggest that our friends write to the above company for their catalog.

#### **The Shorts Universal Level**

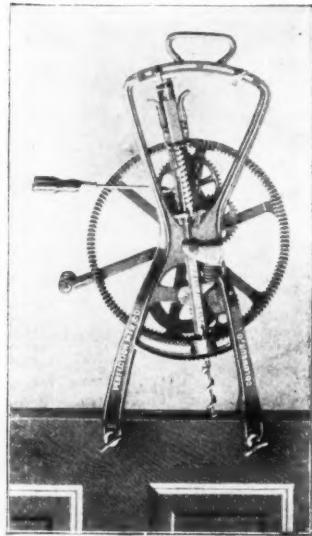
Here is a splendid level that ought to command a good deal of attention from the building trade. It is a "four way" level having two glasses for leveling and two for plumbing. No matter in what position the level is held, there is always one glass in sight. A glance at the illustration will show the working principle quite clearly. As this level promises to be a great little time-saver and accurate worker we may add that our readers can obtain descriptive booklet from W. H. Hill, Cambridge Spring, Pa.



### The Improved Perfection Mortiser

An excellent machine that will make life easier for the busy carpenter is called the Improved Perfection Mortiser. It is unnecessary to dwell upon the difficulty of cutting satisfactory mortises by the old method or the time consumed in doing it. Everyone who has cut mortises with a brace and bit and a chisel knows that there is decidedly much room for improvement.

A study of the illustration will give a clear idea of the working principle of this machine. It is clamped onto the door and adjusted to give the desired depth and length of mortise. Fibre clamps prevent injury to the softest wood. The makers of the machine claim that a perfect mortise can be cut in either hard or soft wood, with or against the grain through knots, dowel pins or panel ends in about five minutes. Excellent construction and easy adjustment are worthy features of the Perfection mortiser. Interested carpenters may obtain more complete information about this machine by writing the manufacturers. Address the Perfection Manufacturing Co., Dept. 5, Columbus, Ohio.



### A Handy Clothes Drier

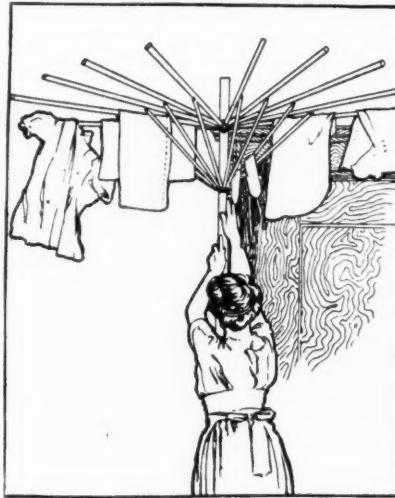
A very industrious little woman whom we'll call Mrs. Smith, because that isn't her real name, had two little children; and no one knows better than she what work those two little toddlers caused. Day in and day out Mrs. Smith washed their little dresses, aprons and all the other little things that babies wear. Mrs. Smith used to say, "It's all right in the summer time, but—oh, the winter!" But during the winter and on the rainy days throughout the year this little mother had to wash, and to dry the clothes used to string a line back and forth across the kitchen. She hated that line. It spoiled the whole day for her and she used to say she was more tired out at night from ducking back and forth under the line and dodging wet clothes than if she'd spent hours over the wash tub.

The time came when Papa Smith got all that was coming to him. He dashed out into the dark kitchen one cold winter night. And the kitchen was cold, beastly cold. Papa Smith kind o' shivered in his thin night shirt, but then the baby must have a drink. Just as he reached out for the water pail, he and the clothes line were introduced to each other. The bally thing caught him a neat clip under the chin and broke. When Mrs. Smith answered his savage yell and found a light she also found her husband writhing on the floor with the tangled clothes line, his head and bare legs encased in wet, cold and clammy baby garments. And of course his wife laughed. Who wouldn't? The joke was on Smith, but he couldn't see it.

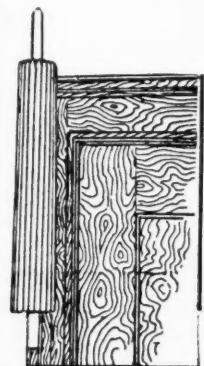
A week later he came in with a contraption which he carefully fitted to the door casing. Mrs. Smith watched him curiously. When it was up he raised the long arms of the thing, slipped the supports into place and said triumphantly: "There, Nell, hang your clothes on that." Then they both laughed, for they realized that the drier would do away with Smith's enemy, the clothes line, and the arms of the drier could be pushed up on the standard to such a height

that they would be out of the way and the clothes get the benefit of the warm air near the ceiling.

Then Smith sold his patent and the Universal Clothes Drier Co. of Rutherford, N. J., was formed. They have



Drier In Use



Folded, Out of The Way

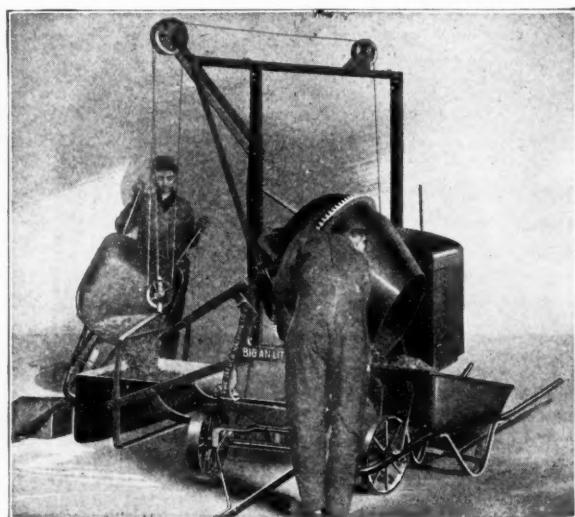
made many homes happy with the same thing that put the smiles on Smith's face. They now want people to write them for the agency and become happy home makers. Of course there's a profitable field for anyone, but our carpenters and builders can possibly use their rainy days and off time to good advantage.



### Another Improvement Demonstrated

Last month we called your attention to the Big-an-Little mixer with hoist attachment. Here's another new feature of this mixer that has been brought to our notice very recently. We pass the information along.

In the illustration we find the Big-and-Little mixer equipped with a side loader which 'tis said doubles the output of the machine. The point is that two men can work at the machine without interfering with each other or the working of the mixer. One man dumps the mix into his barrow while the other throws a charge into the loader. When the mixing drum falls back into position the loader rises and the charge slides into the drum—a continuous performance developed to produce big results. The side loader can be added to any Big-and-Little mixer. For intelligent and right up-to-date improvements, the manufacturers, the Jaeger Machine Co., 218 West Rich Street, Columbus, Ohio, are setting a fast pace.



Big-an-Little Mixer with Charger

# Gordon-Van Tine Co's Great Offer to Builders Everywhere!

## TIME LIMIT EXTENDED

We are now making the greatest offer of any concern in the building material business. Every carpenter—every contractor—every home-owner in America, who is contemplating early building, should write at once for this greatest of all offers direct from the Gordon-Van Tine Co.

We can save you a large amount of money on any building job. In addition to the cash saving, we give you a service far superior to any other building material organization in America. We carry in stock, ready for immediate shipment, anything and everything required to construct any building, large or small. This means not only the regular stock sash, doors and millwork such as are carried in standard sizes by lumber and millwork concerns, but an immense variety of special designs and sizes of millwork and miscellaneous material. Because of our immense volume of business, we are enabled to offer this special millwork at stock prices. This same class of material purchased anywhere else would of necessity have to be made specially to your order. It would, for that reason, cost you double—treble—or in some cases, quadruple, our prices. The proof is yours for the asking.

## Write Today for a Copy of Grand Free Millwork Catalog of Five Thousand Bargains

This big catalog describes accurately and illustrates truthfully our complete line of building material. Gives detailed sizes and descriptions. You can order direct from the catalog with the absolute certainty of getting exactly the sizes, styles and grades specified. This catalog saves the home builders of America over a million dollars a year. It is the connecting link between America's largest independent millwork and lumber concern and the consumer. Our method of doing business entirely eliminates the middle man. The consumer saves the pyramid of profits which would otherwise go to the jobber, wholesaler and retailer.

### Guaranteed Building Material at Mill Prices

We guarantee quality, safe delivery, and satisfaction on anything and everything we supply. This guarantee is backed by three big banks. Tens of thousands of satis-

fied customers throughout the United States will certify to the fact that Gordon-Van Tine Co. absolutely makes good on its guarantee.

### Write Today for Gordon-Van Tine Company's Great Offer

Don't place your order for millwork and lumber until you have received Gordon-Van Tine's latest and greatest offer. Write today for the Grand FREE MILLWORK CATALOG OF FIVE THOUSAND BARGAINS. Our prices not only mean a substantial saving on the building material, but give you the full benefit of our highly organized plan department, with a strong staff of expert architects. The Gordon-Van Tine Plan Book is a recognized authority on high grade houses, cottages and bungalows. It contains over fifty complete designs, embracing all standard styles of architecture. In writing for the Plan Book enclose 10 cts. to cover cost of postage, mailing, etc.

*Address at Once, Before This Offer Expires*

## Gordon-Van Tine Company

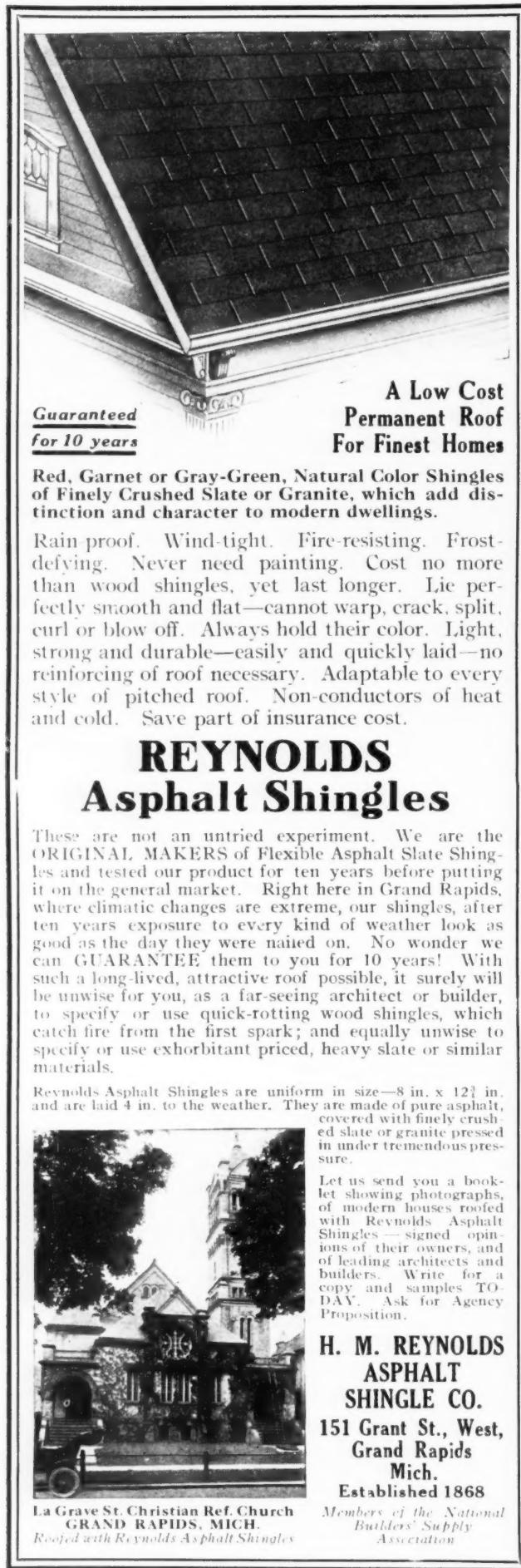
652 Federal Street

:::

Davenport, Iowa

*Largest Independent Millwork and Lumber Plant in America*

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**Guaranteed  
for 10 years**

**A Low Cost  
Permanent Roof  
For Finest Homes**

**Red, Garnet or Gray-Green, Natural Color Shingles  
of Finely Crushed Slate or Granite, which add distinction and character to modern dwellings.**

Rain proof. Wind-tight. Fire-resisting. Frost-defying. Never need painting. Cost no more than wood shingles, yet last longer. Lie perfectly smooth and flat—cannot warp, crack, split, curl or blow off. Always hold their color. Light, strong and durable—easily and quickly laid—no reinforcing of roof necessary. Adaptable to every style of pitched roof. Non-conductors of heat and cold. Save part of insurance cost.

## REYNOLDS Asphalt Shingles

These are not an untried experiment. We are the ORIGINAL MAKERS of Flexible Asphalt Slate Shingles and tested our product for ten years before putting it on the general market. Right here in Grand Rapids, where climatic changes are extreme, our shingles, after ten years exposure to every kind of weather look as good as the day they were nailed on. No wonder we can GUARANTEE them to you for 10 years! With such a long-lived, attractive roof possible, it surely will be unwise for you, as a far-seeing architect or builder, to specify or use quick-rotting wood shingles, which catch fire from the first spark; and equally unwise to specify or use exorbitant priced, heavy slate or similar materials.

Reynolds Asphalt Shingles are uniform in size—8 in. x 12½ in. and are laid 4 in. to the weather. They are made of pure asphalt, covered with finely crushed slate or granite pressed in under tremendous pressure.

Let us send you a booklet showing photographs of modern houses roofed with Reynolds Asphalt Shingles—signed opinions of their owners, and of leading architects and builders. Write for a copy and samples TODAY. Ask for Agency Proposition.

**H. M. REYNOLDS  
ASPHALT  
SHINGLE CO.  
151 Grant St., West,  
Grand Rapids  
Mich.  
Established 1868**

*Members of the National  
Builders' Supply  
Association*

**La Grange St. Christian Ref. Church  
GRAND RAPIDS, MICH.  
Roofed with Reynolds Asphalt Shingles**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### "Ohio" Edge Tools

Woodworkers generally know the satisfaction of using a dependable first-quality tool. They have learned to be discriminating in picking out chisels, planes, auger bits and the rest. The shrewd carpenter these days doesn't go to the hardware store and ask for a tool, taking whatever the hardware man may happen to offer him. He knows himself,



Three Ohio Tool Co. Products

what brand of tool he wants and he calls for it by name.

If the dealer doesn't have the brand asked for, one of two things happens. The hardware man either gets it, or the carpenter goes somewhere else.

This is the way it should be, for the manufacturer's name or mark on a tool is the only guarantee the purchaser can have. Good old reliable tools that have proved themselves by years of use are the kind a carpenter wants. When once a tool has given such faithful service, that is the brand the carpenter will ask for and insist upon when he wants more tools.

"Ohio" tools made by the Ohio Tool Co., Columbus, Ohio, and Auburn, N. Y., have gained the reputation that brings tool users back again and again inquiring for "Ohio" tools. They are made to-day with the same painstaking care that has built up this reputation in the past. Two of their leaders are the chisel and the plane illustrated.

These people have a special carpenters' catalog of high-grade tools and benches, which they want to place in the hands of every one of our readers. It is worth writing for. Address Department 15, Ohio Tool Co., Columbus, Ohio.



### A Dust Proof Engine for Contractors

How many contractors today figure the amount of money they spend yearly in repairs on engines, etc., caused directly from the action of dust and dirt cutting out bearings and rapidly wearing out the other moving parts?

If every contractor was to stop and consider that a good many of the gasoline engines manufactured today have open crank cases, all bearings and cylinder and piston being open and exposed to all the dust and grit that is always blowing around new structures, he would wonder why they are being used or ever manufactured.

Nothing cuts quicker than cement dust and every contractor should have an enclosed crank case engine with automatic lubrication which eliminates all dust from getting into the working parts and thus protecting his machine.

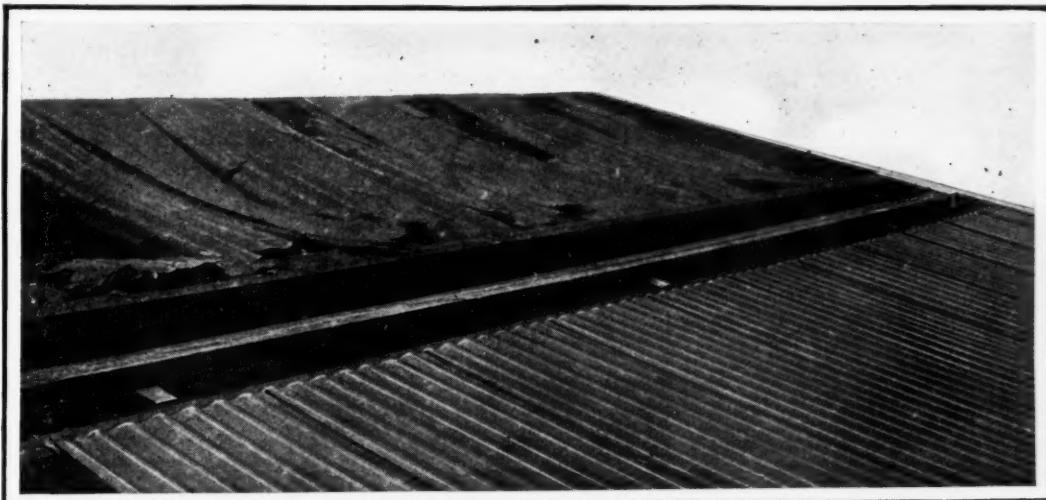
The "New Way" Motor Company of Lansing, Michigan, are building an enclosed crank case, automatic lubrication, heavy duty air cooled engine.

Every contractor should investigate the merits of the "New Way" and their ability for contractors' work.

# COPMETL

To the Public Interested in Sheets Subjected Particularly to Service and Time Test under Atmospheric Conditions, also to the Accelerated Acid Test

THIS PHOTOGRAPH WILL BE OF VALUE



THE above photograph shows a roof specially constructed of black steel sheets (no coating of any character). The upper portion displays a corrugated roof of ordinary steel, which is almost decomposed. The lower portion shows a roof of "COPMETL" in almost as GOOD CONDITION AS THE DAY IT WAS LAID. Both sections were laid simultaneously and were exposed to the atmosphere for the same period. Both portions are of No. 27 Standard Gauge.

## ANNOUNCEMENT

AS the best minds in the metal industry have for some years been devoted to the development of sheets that would show the best non-corrosive properties in actual service under atmospheric tests, and our reference is to either in the black sheet or in the coated sheet, and as our own investigations and tests have proven the superiority of the basis being alloyed with copper, we now offer to the trade our "COPMETL OLD STYLE ROOFING TIN," which, manufactured by our Special Palm Oil Process, will show longer life and better results than any product heretofore offered

WE state, in order to give the trade immediate confidence in our "COPMETL OLD STYLE ROOFING TIN," that the black sheets from which it is made will stand longer and show better results than any other regular black steel sheets, provided the test is made under identical conditions. Our

"COPMETL OLD STYLE ROOFING TIN" will show infinitely longer service when exposed to the atmosphere or under the accelerated acid test than any other old style roofing tin.

BEFORE you purchase of us we will, if you desire it, submit samples of the regular Open Hearth Plate and samples of our "COPMETL" that you can expose them side by side in the atmosphere, and we also will willingly submit samples of our "COPMETL OLD STYLE ROOFING TIN" made on our Copmetl Base.

THE community at large may feel assured that this brand of roofing tin—"COPMETL OLD STYLE"—will rapidly be recognized as the standard for roofing plates, just as has been the case when any reliable product has been given to the trade supplemented with our endorsement.

SAMPLES WILL BE SUBMITTED TO ANYBODY WILLINGLY



OUR "COPMETL OLD STYLE" ROOFING TIN IS SUBJECT TO TESTS BEING MADE BY  
YOU PREVIOUS TO CONTRACTING WITH US



## MERCHANT & EVANS COMPANY

PHILADELPHIA  
CLEVELAND

NEW YORK  
CHICAGO

BROOKLYN  
KANSAS CITY

BALTIMORE  
WHEELING

Works: PHILADELPHIA, WHEELING AND CHICAGO

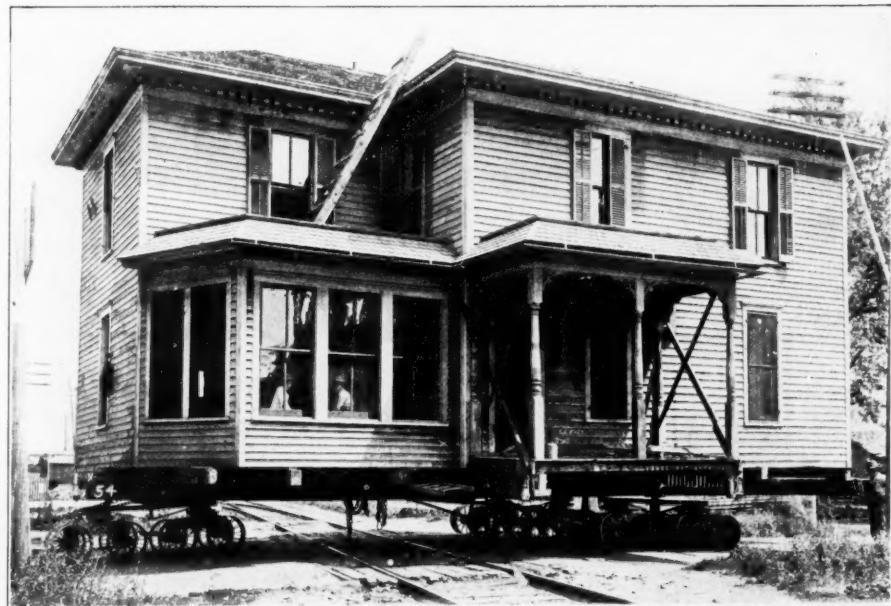
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### Money in Moving

House moving is something that most contractors and carpenters don't like to tackle, for with only ordinary means at their disposal it does turn out to be quite a "job." To simplify this part of the contractor's work, the House Movers Supply Co. have developed house moving machinery to a point of great efficiency. An interesting example of what has been done by using their trucks is shown in the accompanying picture.

This large fourteen room house was moved nearly six blocks across street car tracks and a double railroad track and set ready for the foundation in two days and a half. When we consider that four men using three eight-wheeled trucks did the work it looks as if this was pretty quick work.

The trucks designed and built by this supply company have a great advantage over rollers. In moving, the motion is smoother and the building is not racked. Being constructed of the best white oak and carbon steel they practically last a life time. These trucks are especially reinforced throughout. Very wide tires are used and the number of spokes is sufficient to prevent the tire from bending. This is also prevented by staggering the spokes



Large House Being Moved on Movers Supply Co. Trucks

The spoke heads are flanged on the inside of the tire so the danger of their loosening or pulling out is avoided.

The House Movers Supply Co., Eastlack Court, Cedar Rapids, Iowa, illustrate a nice line of machinery and tools in their book "House Moving Machinery and Tools that Move Things." Their line covers a wide range of trucks, portable capstans, jacks, dollies, rollers, snatch blocks, ropes, cables etc. We suggest that interested builders write for this free book.

## Quality Is Economy

"Perfect building work is absolute economy.  
Fairly good work is half-way measure.  
Shoddy work is criminal extravagance."

*—Building Management.*

These are strong statements, but we doubt if there's an intelligent builder in America who doubts them.

Concerning no other part of the building work are these statements quite so indubitably true as of the Finishing work.

The particular facts of which doubt is impossible are the Elegance and the Endurance of Murphy Varnishes.

The Varnish  
That Lasts  
Longest

**Murphy Varnish Company**

FRANKLIN MURPHY, President

Associated with Dougall Varnish Company, Limited, Montreal, Canada

NEWARK,  
N. J.  
CHICAGO,  
ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



## Buy direct from our mills

*and make more money than any other carpenter and builder in town*

The biggest item in your bids is the lumber and materials, isn't it? Think what it means to reduce this item 40% to 60%. It means you can reserve a bigger profit for yourself and still underbid the other men by a good many dollars.

The reasons why we save you 40% to 60% are very plain. From the time the trees fall in one of our huge timber tracts to the time the finished lumber is shipped, there is just one

overhead expense—just one producing profit. Hence the mill price that is the record for lowness. And it is this mill price, without one middleman's profit, that you pay.

But lower prices isn't the only advantage you get by dealing with us. We enable you to

### Give your customers better materials than you can get from your local dealers

Every stick of lumber, every piece of millwork we send you is top-notch quality through and through. Just read what a few of our customers say about it.

"I want to say to you that I am *well pleased* (also the architect and the school board) with the lumber furnished me for the Granger high school building."—*C. W. Gilbert, General Contractor, Granger, Wash.*

"I am proud of this lumber, as it is better than I could get at local yard here."—*Geo. Gunderson, Vega, S. D.*

#### No matter where you live we can help you get more business

##### West

We own thousands of acres of choicest Western timber—fir, spruce, cedar, hemlock and Western soft pine. We own logging camps and railways. Six great mills convert the timber into lumber and millwork of highest quality. They produce twenty to thirty carloads per day. Our lumber is long and straight, free from large knots and sap. Beautiful in appearance. Wonderfully durable.

##### East

We now control two large mills convenient as Eastern shipping points. Our St. Louis mill is equipped to ship cypress, yellow pine, oak finish doors, sash, columns, etc. Our Southern mill in the heart of the celebrated Rose Mary Belt, has unequalled facilities for shipping you soft, short leaf yellow pine. Makes best casing, base and interior finish. Works easily. Takes and holds paint well. Makes beautiful appearance under varnish. No cheap finish to equal this.

#### Quality and satisfaction guaranteed

We back every shipment of materials from the West with the guarantee that it will grade better than trust or combine standards. Our yellow pine is manufactured in strict accordance with the Yellow Pine Manufacturers' Association grading rules. The materials we furnish are bound to make a hit with your customers.

#### Prompt delivery anywhere in United States

##### Prompt Shipments

We maintain huge stocks at all of our mills. Miles and miles of lumber piles—warehouses, full of millwork of highest quality—await your orders. We will ship orders within an average of 24 to 48 hours. Our shipments reach destination within an average of two weeks. You always figure this much in advance.

#### One estimate will convince you

Send us your complete list or schedules of materials for work on which you are now figuring. Get our prices. Find out what a big saving we can make you. Underbid competition, get more business, make more profit. Send lists or schedule today.

##### Quick deliveries

##### West

From Seattle, seven great transcontinental railroads rush our shipments to all points West of the Mississippi—work delivered within two weeks.

##### East

Our St. Louis and Southern mills, (near Shreveport, La.) offer a similar service to all Eastern points. There are twenty-six railroads out of St. Louis. Shreveport has eight, effecting prompt deliveries to Eastern points as well as Oklahoma and Texas.

**Kindly send me your Catalog and List of Prices on lumber and building supplies laid down at my station.**

Name \_\_\_\_\_

Address \_\_\_\_\_

Business \_\_\_\_\_

# Hewitt-Lea-Funck Co.

23 First Avenue - - Seattle, Wash.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**"This stone stands by me  
like an old friend"**

"It behaves as a good stone should—it cuts fast, it doesn't glaze, it doesn't groove, and even dropping won't break it."



The only stone of which  
all this is true is the

**PIKE INDIA OILSTONE**

Oil it right and use it as hard as you  
please—it will last you practically for life.

It's the knowing carpenter's stand-by for a quick,  
sharp edge. It's made of Alundum—an electric furnace  
product with crystals so hard, so sharp and so  
tough that they just EAT even the hardest tool steel.  
No other stone that cuts so fast wears down so slowly.

All over the country—in big machine shops, carpenter  
shops, wherever sharp tools are used, Pike  
India is replacing all other stones.

Pike India Oilstones are made in 66 shapes—one for  
every conceivable purpose. But the one best stone  
for all around carpenter work is the Pike India Com-  
bination Oilstone—one side coarse, the other fine, size  
 $7 \times 2 \times 1$ , \$1.00, or in a hardwood box \$1.25. For sale  
at hardware and tool dealers' or sent direct prepaid.

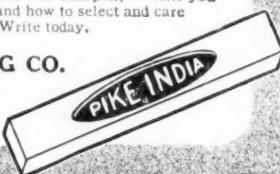
**"Pick a Pike"**

For ninety years the Pike name has stood for satis-  
faction in sharpening stones, and remember that  
every Pike Stone is GUARANTEED. Your  
dealer is authorized to replace any Pike stone that  
proves defective.

**FREE—A Pike India Stone**

Send us your dealer's name and 4c for packing and mailing and  
we will send you a Pike India Vest Pocket Stone, for pocket  
knives, etc., just to show you how fast all Pike Stones sharpen.  
We will include our famous book "How to Sharpen," tells you  
how to sharpen knives, tools, etc., and how to select and care  
for oilstones. You'll be pleased. Write today.

**PIKE MANUFACTURING CO.**  
27 Main St., Pike, N. H.



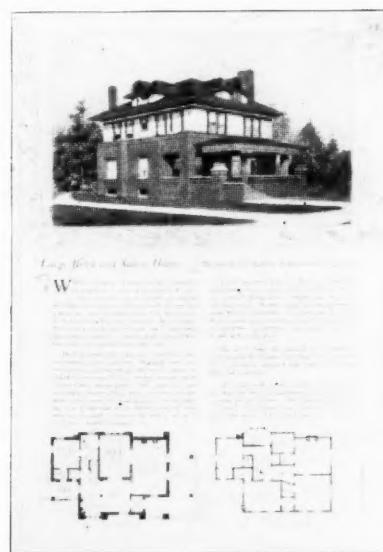
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

**A Building Plan Book Out of the Ordinary**

There are plan books and plan books, all of them more or less interesting to carpenters and builders and to "the man about to build." Of all of these, the one recently received from the General Roofing Mfg. Co., East St. Louis, Ill., is in some respects the most remarkable and at the same time interesting in a practical way.

The title of this book is "Modern Building Ideas and Plans." We have heard a good deal about this book during the past months, having read some advance reviews of it and so were eager to see the finished book itself.

And this proved one case where realization went even ahead of expectation. The book, 64 pages, size 8x11, printed in two colors on finest enamel paper and filled to overflowing with the latest and best ideas in planning and construction of all kinds of buildings, is a volume



Photograph of one of the Pages

that will appeal to everyone interested in building. The residence and other building designs illustrated are model structures of their several kinds. The man who wants an artistic little bungalow or a well-designed medium sized residence that will give him the biggest value for his money when building, will find a great selection of practical ideas in this book.

The department of farm buildings, dairy barns, stables, poultry houses, shelter sheds, ice-houses, etc., has not been neglected. School houses, factories, apartment buildings and other large structures are also well represented.

The perspective views are well rendered, the plans clearly drawn and the descriptions are full of many money saving points which should be observed. All together it is a powerful and convincing presentation of the worth of Certain-teed products for present-day building. Certain-teed roll roofing, Certain-teed asphalt shingles, Certain-teed specification built-up roofs, also Certain-teed water-proofing, black building paper and deadening felt, are clearly explained and demonstrated.

The General Roofing Manufacturing Co. may be congratulated on presenting reliable information concerning their roofings and other building materials in such attractive form which will really interest and benefit architects, builders and building owners.



## Reasons for Selecting

# ARKANSAS SOFT PINE for Interior Trim

The price is reasonable.

No wood takes stain and paint better.

Each room may be treated differently: Living and Dining rooms in **dark oak**; Guest room, **Circassian walnut**; Bed room and Bath, **flat white**, with doors stained **mahogany**; Kitchen, **dark oak**.

You can secure dry, perfectly clear stock from your local dealer and if you need an extra piece or two you can get it from the same source—no waiting.

*These are the reasons given by a builder for using Arkansas Soft Pine for Interior Trim, the home being built entirely of our lumber.*

If interested in trim woods send for a copy of our recently published book on the subject.

SOUTHERN LUMBER COMPANY  
Warren, Arkansas

STOUT LUMBER COMPANY  
Thornton, Arkansas

WISCONSIN & ARKANSAS LUMBER COMPANY  
Malvern, Arkansas

ARKANSAS LUMBER COMPANY  
Warren, Arkansas

COTTON BELT LUMBER COMPANY  
Bearden, Arkansas

CROSSETT LUMBER COMPANY  
Crossett, Arkansas

EAGLE LUMBER COMPANY  
Eagle Mills, Arkansas

EDGAR LUMBER COMPANY  
Wesson, Arkansas

FORDYCE LUMBER COMPANY  
Fordyce, Arkansas

FREEMAN-SMITH LUMBER COMPANY  
Millville, Arkansas

GATES LUMBER COMPANY  
Wilmar, Arkansas

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

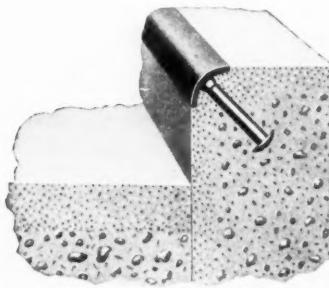
### Pavement Joint and Curb Protection

We feel confident that every engineer, contractor, or land owner in our cities or small towns appreciates the economy of concrete for pavements or curbs, but unless provision is made to protect the pavement or curbing, extra expense in repairing and relaying is certain to follow.

A new idea evolved and put into practical use by the Trussed Concrete Steel Co. seems to insure the necessary protection. The contrivance, which is called the Trus-Con



Trus-Con Curb Bar



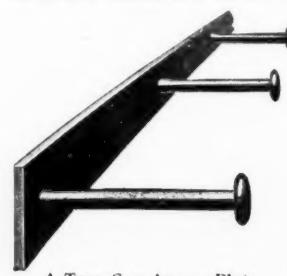
Trus-Con Curb Bar in Place

Curb Bar is a curved strip of steel 3/16 of an inch in thickness and varies in length. At intervals along the length of this bar there are anchor bolts, the shanks of which are welded securely to the bar. This illustration shows a cross-section of the Trus-Con Curb Bar.

In the laying of pavements where space between the different sections is desirable, the Trus-Con Plate is used. The detail of this plate is similar to that of the Trus-Con Curb Bar, with the exception that the bar proper presents a straight surface instead of a curved one. The illustrations, given here-

with show a cross-section of concrete pavement with the joint protected by Trus-Con plates. On roadways laid in a continuous strip, unsightly cracks will naturally develop; and the crack, unless properly protected, forms the weakest point in the road. The Trus-Con Plate gives the necessary protection, inasmuch as it insures even, gradual wear at the point of section.

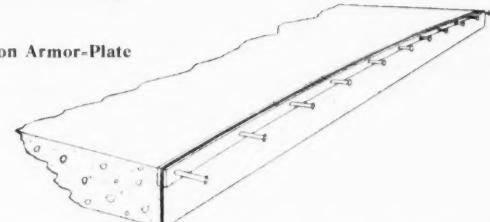
These items are deserving of attention from all our readers who are interested in the laying of concrete either for pave-



A Trus-Con Armor-Plate



Vertical Section through Plate-Protected Joint

Trus-Con Armor-Plate for Protection of Expansion Joints in Concrete Pavements. Curve adapted to crown of road. Asphaltum felt,  $\frac{1}{8}$  in., between plates, cuts entire depth of pavement

ments or roadways. The Trussed Concrete Steel Co., Detroit, Mich., are very generous in their offer to give whatever information they can to anyone who contemplates the construction of concrete paving. They invite inquiries on individual requirements, and furnish complete details, estimates, etc. This company is in a position to offer some very valuable assistance to our readers in solving paving problems.

## COLONIAL Fireplaces

**Will Save You**

**Time**

**and**

**Money**



**Your Best "Booster"**

is the work you do. Every successful job is a lasting advertisement of your ability.

Colonial Fireplaces are shipped to you ready

to set up with full details for installation. They are equipped with the Colonial Head, Throat and Damper, a device that insures correct construction at the fireplace throat and regulates the draft to weather conditions.

Colonial Fireplaces are built in a great variety of styles and at a range of prices that will suit any job you have.

Write for "The Home and The Fireplace" our booklet of full information and let us quote you prices.

**Colonial Fireplace Company**

## COLONIAL Head, Throat and Damper

**Makes the Job a**

**Success**

4636 West 12th Street  
CHICAGO, ILL.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

# Carpenters, Builders—there is a simple method of applying Certain-teed Roofing on any kind of a building



# Certain-teed Roofing

(Quality Cert-ified      Durability Guar-an-teed)  
Guaranteed 15 years—wears longer      Rolls and Shingles

## The roofing that has "made good" on the roof

When ready roofing was first put on the market, many architects, builders and carpenters preferred to wait and see it tested on the roof.

The ready roofing that won out had to do so on merit. **Certain-teed** Roofing settled all arguments by giving absolute satisfaction in all climates and under severe conditions. Its use on all kinds of buildings has grown by leaps and bounds.

The durability of this modern, easy-to-lay **Certain-teed** Roll and Shingle Roofing is remarkable—it is guaranteed for fifteen years and will last much longer.



Look for the  
**Certain-teed**  
Quality label on  
each Roll and  
Crate of Shingles



## Free to builders and carpenters

Apply to the dealer from whom you buy your building materials for our new book, "**Modern Building Ideas and Plans.**" It will help you in your business. It contains valuable ideas and building aids.

**Certain-teed** Roofing is used anywhere—sold everywhere—  
for sale by all dealers and applied by all leading roofers

## General Roofing Manufacturing Company

E. St. Louis, Ill.      York, Pa.      Marseilles, Ill.      Minneapolis, Minn.      San Francisco, Cal.  
Winnipeg, Man.      London, England      Hamburg, Germany  
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**Look for the "Big Chuck"  
when you buy a brace**

*Then look for "The MARK of the  
MAKER" and you can be sure it's a*

**P. S. & W. "Samson"**

**YOU can't mistake  
the Samson Ball-  
bearing Chuck. It fits the hand  
comfortably and gives you the  
tightest, quickest grip and easiest  
release of any brace ever made.**

It's the top-notcher in the most complete brace-line on the market, perfect in every detail from the alligator jaw and steel sweep to the lignum-vitae, steel-clad head with dustproof ball-bearings.

**P. S. & W. Auger Bits are  
Guaranteed, too.**

P. S. & W. solid-center, single-twist Auger Bits are made from the highest grade of crucible auger-bit steel. They are strong, fast, easy-cutting, with ample clearance and have a medium thread suitable for all purposes.

P. S. & W. Expansive Bits are made of the best Jessop high-carbon steel. The thread is fine and well adapted to the pulling strain on large bits. Beveled cutting-edge, ample clearance at throat and graduated shank to determine depth of bore.

Write today for your copy of the Mechanics' Handy List, a 170-page book, listing over 200 tools for Carpenters, Machinists, Electricians and Tin-smiths. Many pages of reference tables and valuable information.

**The Peck, Stow & Wilcox Co.**

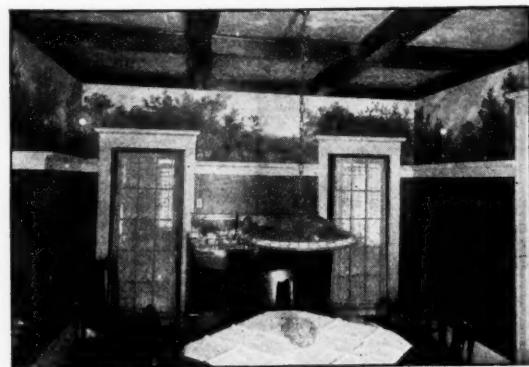
MFRS. of the Largest Line of Mechanics' Hand Tools Offered by Any Maker  
Southington, Conn. Cleveland, Ohio  
New York, N. Y.

Address 22 Murray St., New York City.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

**Plastergon Wall Board**

To the builder, wall board has specially attractive features. First of all, it has added a distinctly new source of profit, to his business; inasmuch as the walls and their coverings were formerly a distinct and separate part of the work, which only interested the builder from the point of view of how much money he would lose, through the delays of the plasterers. Now, with wall board, the builder is interested in the walls and their coverings, from the point of view of how much money he can make, by taking the plasterer's job into his own contract; and how much money he can save, by



**A Plastergon Dining Room**

having the building finished at the convenience of the builder, and not at the convenience of the plasterer. The builder is also interested in the fact that wall board being cheaper than lath and plaster, he is thereby enabled to make a lower bid for the whole job, than can be obtained by the owner, through separate contracts for building, plastering, decorating, etc.

Among the pioneer manufacturers of wall board, is The Plastergon Wall Board Company, of Tonawanda, N. Y., whose product has become thoroughly familiar to builders, through their extensive advertising in the trade papers, the magazines and the newspapers. The enormous success which the product of this company has attained has proved beyond question the merit of Plastergon, while their up-to-date, progressive methods have won the favor of the trade.

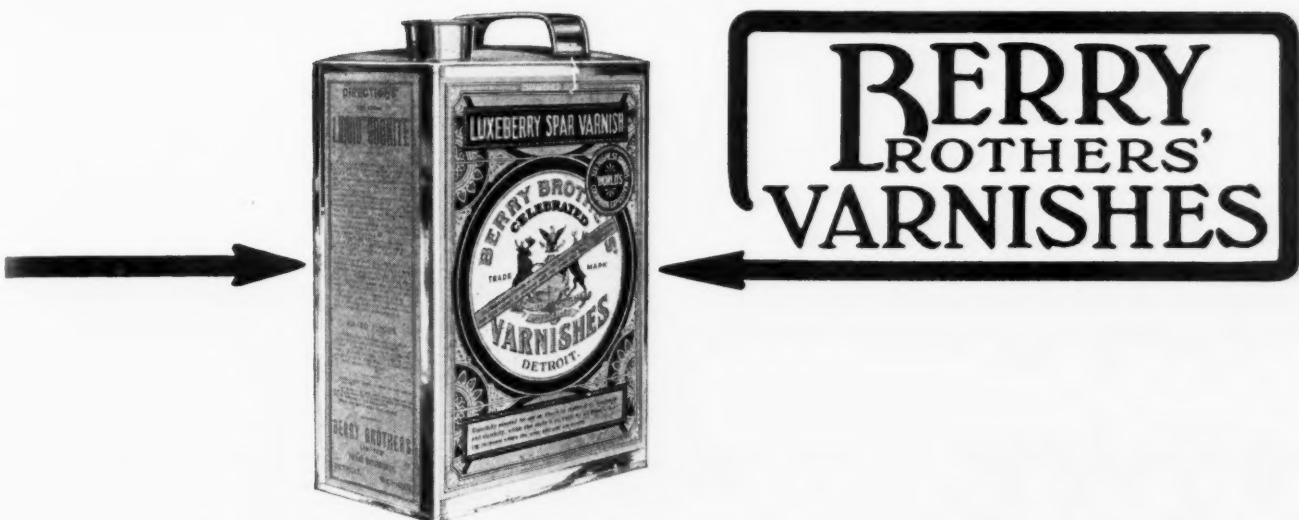
The Plastergon Company claim certain features in their board, which merit the consideration of builders who are taking advantage of the opportunity for extra profit which



**A Plastergon Finished Office Building**

wall board affords them. While these features are many, the one which principally interests builders, and which therefore includes all the rest, is that every Plastergon Board is guaranteed to give absolutely satisfactory service. The price of Plastergon also is right.

Builders who realize the great profit-making possibilities of wall board will do well to communicate with The Plastergon Wall Board Company, at Tonawanda, N. Y., and ascertain from them their prices, business-making plans, etc., which, together with samples of Plastergon will be forwarded on request to any of our readers.



## Your Job Looks Just As Good As The Finish

HAVEN'T you ever heard a visitor say  
"It looks cheap"?

Don't you know that the surest way to make an enemy of a former client is to have the finish on a job crack, peel, mar or whiten in a short time?

The average man or woman will judge an entire piece of work by that one thing.

The finish is too important to take a chance on. And when it's Berry Brothers, you don't take a chance, for 55 years of quality manufacture are back of every drop.

"Natural Woods and How to Finish Them", full of information that you ought to have at your fingers' ends, written by an expert. Write for it.

**Send For This  
Free Book**

A world-wide business has grown since 1858 from this old kettle.



### BERRY BROTHERS

*Established 1858*

Factories:

Detroit, Mich., and Walkerville, Ontario.

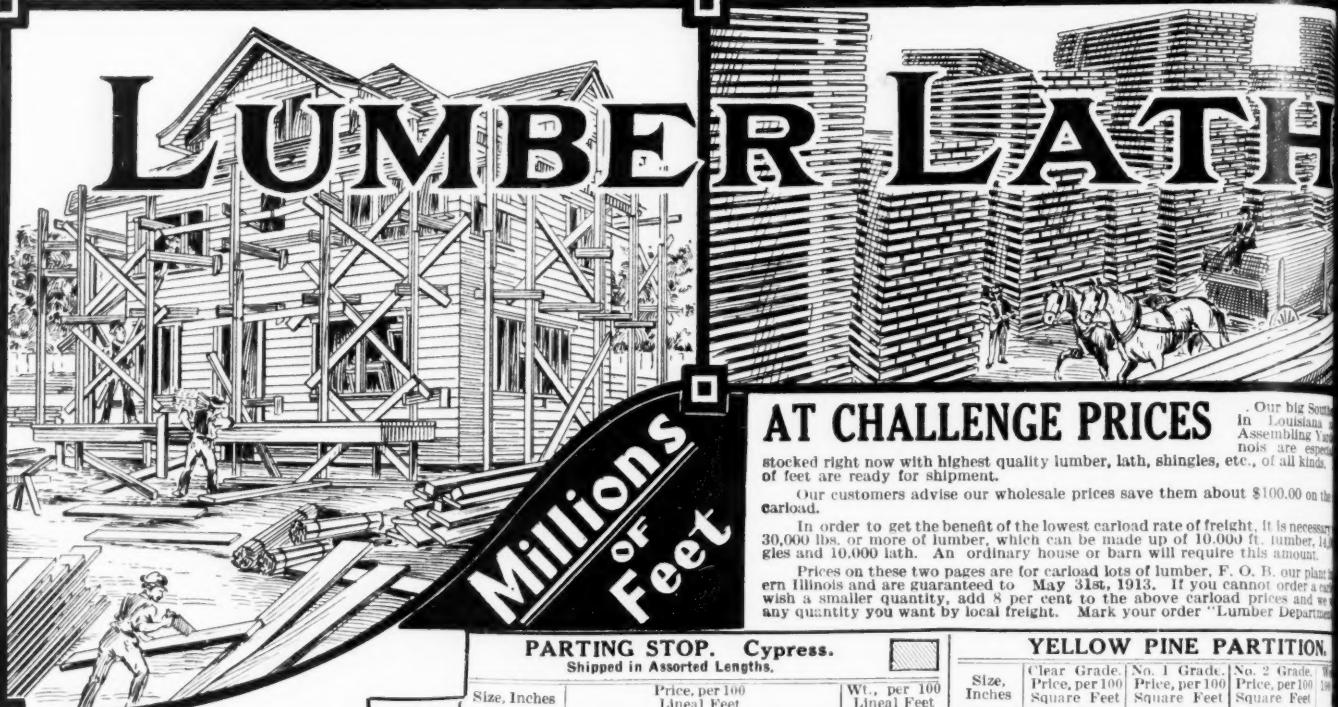
Branches:

New York, Boston, Philadelphia, Baltimore,  
Chicago, Cincinnati, St. Louis, San Francisco,  
London, England.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

# LUMBER LATH

Millions  
of  
Feet



## AT CHALLENGE PRICES

Stocked right now with highest quality lumber, lath, shingles, etc., of all kinds.

feet are ready for shipment.

Our customers advise our wholesale prices save them about \$100.00 on the carload.

In order to get the benefit of the lowest carload rate of freight, it is necessary 30,000 lbs. or more of lumber, which can be made up of 10,000 ft. lumber, 10,000 ft. shingles and 10,000 lath. An ordinary house or barn will require this amount.

Prices on these two pages are for carload lots of lumber, F. O. B. our plant near Illinois and are guaranteed to May 31st, 1913. If you cannot order a carload, a smaller quantity, add 8 per cent to the above carload prices and we will supply any quantity you want by local freight. Mark your order "Lumber Department."

### CROWN MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x2 1/4	\$1.10	40 pounds
13-16x3 1/4	1.35	45 pounds
13-16x3 1/2	1.55	52 pounds
13-16x3 1/4	1.74	60 pounds
13-16x4 1/4	1.95	68 pounds

### BED MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x2	\$0.83	28 pounds
13-16x2 1/4	.94	31 pounds
13-16x2 1/2	1.10	38 pounds

### DRIP CAP MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 1/8x1 1/8	\$1.17	28 pounds
1 1/8x2	1.46	34 pounds
1 1/8x2 1/2	1.66	42 pounds
1 1/8x3	2.09	52 pounds

### COVE MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
5/8x 7/8	\$0.37	13 pounds
13-16x1 1/8	.45	16 pounds

### NOSING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 1/8x2	\$1.45	34 pounds

### BRICK MOLDING. Cypress.

Will Be Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1 1/8x1 1/4	\$1.17	30 pounds
1 1/8x2	2.40	55 pounds

### SCREEN MOLDING. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
5/8x 7/8	\$0.37	13 pounds
7 1/8x 7/8	.39	14 pounds

### DOOR AND WINDOW STOP. O. G. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
3/8x1 1/8	\$0.37	8 pounds
3/8x2 1/8	.41	9 pounds
1/2x1 1/8	.59	13 pounds
1/2x2	.66	15 pounds

### LATTICE. Cypress. Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
5-16x1 1/4	\$0.31	8 pounds
5-16x1 1/2	.37	9 pounds
5-16x1 1/4	.50	12 pounds

### PARTING STOP. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
1/2x13-16	\$0.37	8 pounds

### BLIND STOP. Cypress.

Shipped in Assorted Lengths.

Size, Inches	Price, per 100 Lineal Feet	Wt., per 100 Lineal Feet
13-16x1 1/2	\$0.55	21 pounds

### QUARTER ROUND.

Shipped in Assorted Lengths.

Size, Inches	Cypress Price, per 100 Lineal Feet	Size, Inches	Yellow Pine Price, per 100 Lineal Feet
5/8x 5/8	36c	5/8x 3/4	26c
3/8x 3/4	37c	3/8x 1/2	30c
7/8x 1/2	38c	1/2x 1/2	42c

### FLOORING. Yellow Pine.

FLAT GRAIN.

Thickness, Inch	Width of Face	Grade	Weight, per 100 Square Feet	Price, per 100 Square Feet, Surface Measure
13-16	2 1/2 inch	Clear	200 lbs.	\$3.10
13-16	2 1/2 inch	No. 1	200 lbs.	2.85
13-16	2 1/2 inch	No. 2	200 lbs.	2.15
13-16	3 1/4 inch	Clear	210 lbs.	2.90
13-16	3 1/4 inch	No. 1	210 lbs.	2.65
13-16	3 1/4 inch	No. 2	210 lbs.	1.93
13-16	5/4 inch	Clear	220 lbs.	2.90
13-16	5/4 inch	No. 1	220 lbs.	2.73
13-16	5/4 inch	No. 2	220 lbs.	2.15

ORDER ENOUGH EXTRA TO ALLOW FOR TONGUE AND GROOVE.

Above prices are for assorted lengths. Specified lengths, 20 cents per 100 square feet, extra.

### FLOORING. Yellow Pine.

EDGE GRAIN.

Thickness, Inch	Width of Face	Grade	Weight, per 100 Square Feet	Price, per 100 Square Feet, Surface Measure
13-16	3 1/4 inch	Clear	200 lbs.	\$4.10
13-16	3 1/4 inch	"C"	200 lbs.	3.32

ORDER ENOUGH EXTRA TO ALLOW FOR TONGUE AND GROOVE.

Above prices are for assorted lengths. Specified lengths, 20 cents per 100 square feet, extra.

### FLOORING. Made Especially for Porch FIR, EDGE GRAIN.

Finished Thickness, Inches	Width Face, Inches	Grade	Wood	Weight, per 100 Feet, Board Measure	Price, per 100 Feet, Board Measure
7/8	3 1/4	Clear	Fir	200 lbs.	\$4.70
1 1/4	3 1/4	Clear	Fir	220 lbs.	5.20

IN ORDERING ABOVE FLOORING ALLOW EXTRA FOR TONGUE AND GROOVE.

If 1 1/4-inch is ordered add 25 per cent to surface measure for quantity board measure.

### CEILING. Yellow Pine.

Size, Inches	Clear Grade Price, per 100 Square Feet	No. 1 Grade Price, per 100 Square Feet	No. 2 Grade Price, per 100 Square Feet	Weight, per 100 Feet	Price, per 100 Feet
1 1/4x3 1/4	\$2.32	\$2.15	\$1.50	110 lbs.	\$6.35
5/8x3 1/4	2.65	2.32	1.60	140 lbs.	7.90

Order extra to allow for tongue and groove.

### YELLOW PINE PARTITION.

Clear Grade, No. 1 Grade, No. 2 Grade, No. 3 Grade.

Size, Inches	Yellow Pine, Clear Grade, Price, per 100 Square Feet	Yellow Pine, Select Grade, Price, per 100 Square Feet	Yellow Pine, Grade C, Price, per 100 Square Feet	Yellow Pine, Grade B, Price, per 100 Square Feet
3/4x3 1/4	\$3.02	\$2.71	\$2.00	\$1.60

Order extra to allow for tongue and groove.

### FINISHING LUMBER.

Surfaced Both Sides.

Size, Inches	Yellow Pine, Clear Grade, Price, per 100 Square Feet	Yellow Pine, Select Grade, Price, per 100 Square Feet	Yellow Pine, Grade C, Price, per 100 Square Feet	Yellow Pine, Grade B, Price, per 100 Square Feet
1 1/4x3	\$0.90	\$0.76	\$1.18	\$0.90
1 1/4x5	1.13	.95	1.49	1.06
1 1/4x8	1.51	1.26	1.93	1.44
1 1/4x10	1.66	1.40	2.30	1.72
1 1/4x12	2.23	1.88	3.01	2.39
1 1/2x4	3.07	2.55	4.07	3.07
1 1/2x6	2.36	2.03	3.08	2.34



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**Bishopric Stucco Board**

NEWEST THING FOR STUCCO OR PLASTER WORK

Stucco Board is the newest material on the market for concrete and stucco houses. It is nailed to outside studding, and is so constructed as to grip the cement firmly at all points and to prevent the waste of material. Stucco Board was originated by Allison Bishopric, president and general manager of the Mastic Wall Board and Roofing Co., of Cincinnati, Ohio, and is now being marketed by this firm.

In discussing the new product, Mr. Bishopric said that it had come to his knowledge through the contractors who are using Bishopric Wall Board for interior finishing that the metal laths commonly used for stucco backgrounds have a tendency to rust, break and cause the plaster to crack. These contractors and builders, he said, also find that they must use a very large amount of cement for stucco houses to offset this tendency to crack.

These things set Mr. Bishopric thinking. He took some of the Bishopric Wall Board and nailed it wrong side out. Then he plastered the wall so constructed with cement and gave it a stucco finish. He was surprised to find that his wall was finished with half the amount of cement which such an area commonly required. He let the job stand in the weather for a year to give it a try-out.

After hardening, this test wall proved so stiff and gave such a beautiful appearance that Mr. Bishopric decided to make and market a background for the use of contractors and builders in the erection of stucco houses. He had lath prepared with specially designed grooves, and these were imbedded in toughened asphalt-mastic under terrific pressure. The product was then cut up into sheets.

Sample bills of this material were then sent to a number of contractors for use in building stucco houses. The re-

sults were astonishing, and orders began to come in from all who had used it. The new material was named Bishopric Stucco Board, and patents protecting it from imitation were easily secured from the United States government.

The asphalt-mastic composition is a moisture-proof, fire-resisting material. It keeps out the natural dampness of concrete, and is a non-conductor of heat and cold. A thin concrete wall backed with Bishopric Stucco Board keeps house warm in winter and cool in summer.

The lath construction of the product forms a "key" that grips cement as nothing else can. The Stucco Board is said to be a big saver of money, time and labor. It comes in sheets four feet square, to meet the needs of standard sized studs, set on sixteen-inch centers. Is equally well adapted to twelve and twenty-four inch centers. One sheet of Stucco Board, therefore, takes in four studs of sixteen-inch centers, covering the two inner studs completely, and leaving half of the outer studs uncovered for adjoining sheets.

The material is quite easily applied, and in most cases is put on by lathers or carpenters' apprentices. It is nailed in sheets to the studding, and walls are ready at once for cement. There is no waste, every foot of the material being available for use. Hammer, nails and a hand saw are all that are needed to apply it.

Some builders have found Stucco Board a money saver for interior work. These builders are using it instead of laths. They claim that it makes a beautiful, enduring wall with half the amount of plaster, and prevents plaster from dropping from ceiling under jars.

A new booklet on the Mastic Products has been issued, and will be sent free to any builder or carpenter who will write a request for it to the Mastic Wall Board and Roofing Co., Cincinnati, Ohio. It tells all about the new Bishopric Stucco Board.

## All the woodwork in the living-room, sun-parlor, hall and dining-room of this beautiful residence is Birch, stained Mahogany.



Residence of W. K. Grove, Orange, N. J. (Arthur T. Remick, Architect)

Birch is a durable, wear-resisting wood, with an especially pleasing figure. Any of these finishes, when properly applied, will give permanent satisfaction:

Cherry	Walnut
Circassian Walnut	Fumed Oak
Mahogany	Gray
Light Green	Mission Brown
Dark Green	White Enamel
Natural	

A house furnished throughout in Birch meets every requirement, and is in the best of taste.

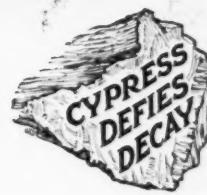
Our Birch Book "C" gives full information upon the properties and uses of Birch and is attractively illustrated. The book and samples of Birch in natural, mahogany, and white enamel finishes will be sent postpaid to any reader of this magazine. Address,

### Northern Hemlock & Hardwood Manufacturers Association

Dept. "C"

Wausau, Wisconsin

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



## HERE'S ONE ON US!

We said } "He Who Builds of Cypress **BUILDS BUT ONCE**," and we said it in perfect sincerity—we believed it sure-enough. (And it is true at that.) Lately, however, the following

### REMARKABLE FACT

has come to light, which "puts it on us."

So NOW WE SAY, "He Who Uses Cypress May Use It **TWICE**" and Here's the PROOF—Read It:

"About 1820 it was deemed advisable for the Ursuline nuns to secure another and larger property, at that time some three miles south of New Orleans on the river bank. Work was here begun upon the construction of a new and larger convent, which was completed and occupied in 1824. This latter building was **USED AS A CONVENT FOR EIGHTY-EIGHT YEARS**, or until 1912, when the City of New Orleans found it necessary to purchase the property in order to run a new line of levee where the buildings stood. During the past two or three months the work of demolishing the old structure has been in progress and **THE REMARKABLE STATE OF PRESERVATION OF ALL OF THE CYPRESS WOODWORK HAS CAUSED MUCH COMMENT**. **THE CONTRACTORS FOUND THEY HAD AN ASSET IN THE OLD MATERIAL AND ALL OF IT HAS ACTUALLY BEEN SOLD FOR NEW CONSTRUCTION WORK.**

At about the time this work of demolishing began Woodward, Wight & Co., Limited, dealers in heavy hardware and mill supplies, found it necessary to construct two warehouses and they purchased, at twelve dollars a thousand feet, timbers and other material which had thus been in use for eighty-eight years. These ware-houses necessarily had to be of very heavy and strong construction, one of them containing racks or foundations upon which are piled boiler tubes, iron pipes, etc. **THE CYPRESS, DESPITE ITS AGE, HAS NOT THE LEAST SIGN OF DECAY, AND IS EASILY HOLDING THE TREMENDOUS LOADS.**

**ISN'T THAT A PRETTY GOOD KIND OF LUMBER TO BUY?**  
**"HE WHO BUILDS OF CYPRESS**  
*'The Wood Eternal'*  
**CAN USE IT TWICE."**

"Cypress is the making of a Carpenter's Reputation." **USE IT. TALK IT. RECOMMEND IT. TELL 'EM "YES."**

Let our "BUILDERS' DEPARTMENT" help YOU. Our entire resources are at your service with Reliable Counsel.

**SOUTHERN CYPRESS MANUFACTURERS' ASSOCIATION**  
 1216 HIBERNIA BANK BUILDING, NEW ORLEANS, LA.

INSIST ON CYPRESS AT YOUR LOCAL DEALER'S. IF HE HASN'T IT, *LET US KNOW IMMEDIATELY.*

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

"CORTRIGHT REG. U.S.PAT.OFF."

**Spring Building**

this year is seeing more CORTRIGHT Metal Shingles laid than ever before. Good wood shingles are mighty hard to get, and even the *best* of them do not compare with

## CORTRIGHT Metal Shingles

*"The Permanent Roofing"*

CORTRIGHT Metal Shingles are fire-proof and can be easily and quickly laid. They take the place of wood shingles and stone slate, giving longer wear and better protection, usually at no greater cost—in most cases, less.

Write for our free book "Concerning That Roof," and we'll tell you more, without obligating you one bit. **WRITE NOW.**

**Cortright Metal Roofing Co.**  
Philadelphia and Chicago

CLIP, SIGN AND RETURN

GENTLEMEN: You may send me your special Contractors' and Builders' proposition.

Name .....

Address .....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### Carefully Constructed Furnace

Moore Brothers Company of Joliet, Illinois, have been building, for some years, a warm air furnace made entirely of cast iron.

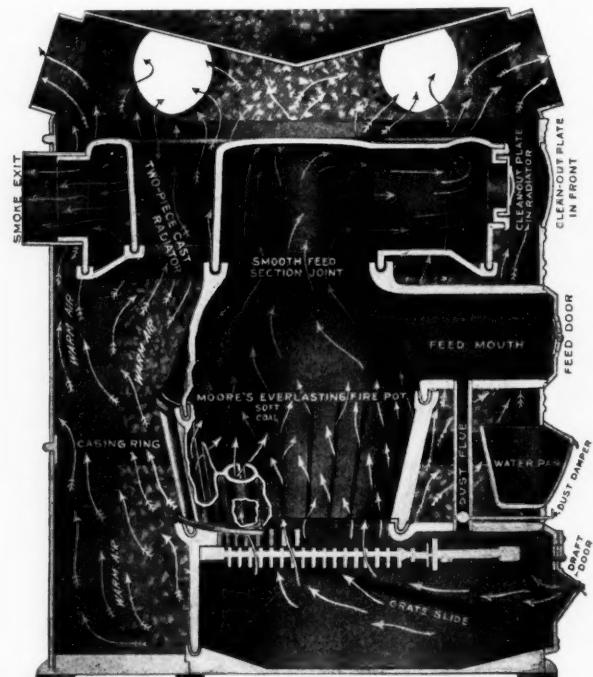
This concern has been established since 1857, and has been making stoves and furnaces continuously since that time.

They have always been strong believers in "testing and proving" and they have been foremost in developing fuel saving and labor saving devices. They realized some years ago that warm air furnace heating was to become the most popular, for house heating; they also realized that a furnace to win its way and hold its reputation must be a thoroughly well designed and well made apparatus.

Incorporated in their Furnace Department is what is called a Testing Station where the heating value of coal is measured, also what parts of the heating surfaces are most efficient.

There are instruments that tell whether there is enough iron in direct contact with the products of combustion to absorb and rapidly carry away into the circulated air all of the heat, so that the life of the castings will be the longest.

These investigations have developed what sort of a radiator is the most efficient—the size of a radiator per size of firepot



Moore's Furnace Cut Open to Show Skillful Design and Thorough Construction

which will maintain the proper velocity of travel of the products of combustion, and in short, show the directions in which improvements can be made.

The result of this close study and analysis, and the application of the information derived has produced in Moore's Furnace an apparatus that is almost perfect for the work.

The men who make these furnaces have taken care of furnaces themselves; they appreciated what an advantage it would be to be able to thoroughly clear the fire. Therefore, they produced a four bar triangular grate, which is arranged to drop just far enough to permit the grate being entirely cleared of all the coal in the firepot or the removal of clinkers following the use of poor coal, and yet not drop far enough to take any chances on losing the fire. This is a feature very much appreciated by the users as well as the fact that when the grate bars are agitated the shaker will be sure to leave the bars in the proper position with the flat side up.

# "The World's Best Motorcycle"



**THE FLYING MERKEL**

## "Made it's name on Merkel Mileage"

What the rider should have is facts—indisputable incidents to prove the merits of the motorcycle being talked about. Every statement made by the makers of the Flying Merkel is substantiated by real performance. Sheriff Fay Young's experience is merely the experience of all Flying Merkel riders.

Have you seen our new art catalog, which fully describes the Self-Starting Two-Speed Flying Merkel Models for 1913? It's free for the asking.

**The Miami Cycle & Mfg.  
Company, 601 Hanover Street  
MIDDLETOWN, OHIO**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

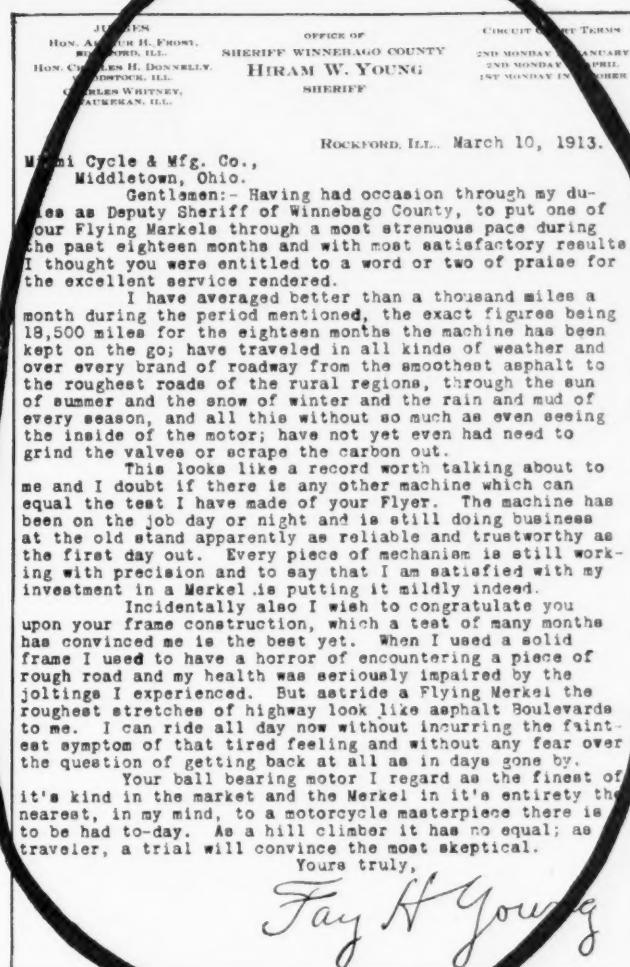
"Wonderful Economy."

"Fastest machine on two wheels."

"Lowest cost of upkeep,"

and similar phrases do not stand for much unless backed up by actual performance.

Read any of the motorcycle advertisements being published today. Nine-tenths of them are about as enlightening as the hieroglyphics on an obelisk of Pharaoh's time. Each machine is the best, but you must take the manufacturer's word for it. There is nothing to back up the cheerful statements and glowing typographical phrases.



The ashpit is exceedingly large, and equipped with a dustless ashpan, which makes furnace tending as easy and clean as that of a stove.

The firepot is Moore's Everlasting Flued Pot, which burns all the gas, smoke and soot of soft coal, and makes it equal in value to hard coal.

The dome has almost straight sides so that it never crushes,

and breaks down from the pressure of the radiator. There is no inwardly projecting or overhanging flange at the point where the radiator joins the dome, but smooth passage for the there is a perfectly products of combustion from the feed section into the radiator dome. The radiator itself is unusually large, both in diameter and in depth, and there is a large space between the radiator dome and the inner wall of the radiator. The

bottom of the latter is

slanted upward and inward, so that the inrushing air is directed easily and freely through the opening and brought into contact with the hottest surfaces of the furnace. The minimum of air is carried between the casing and the outer wall of the radiator.

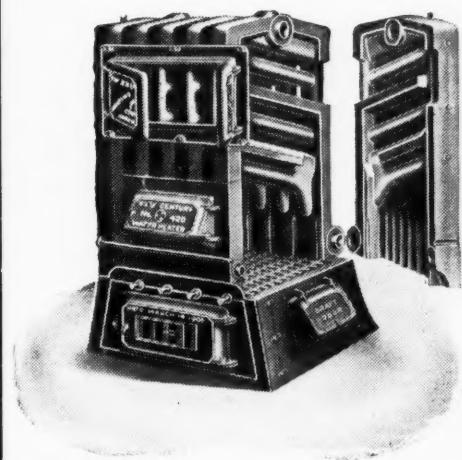
Moore Bros. Company, Joliet, Ill., have prepared a very valuable book called "Furnace Information," which they will gladly send carpenters and builders who will write them.

This Book Sent Free

Over 40,000 Installations Have Proved the Merits of  
**XXth Century Heaters and Boilers**

When you recommend a XXth CENTURY heating equipment you know it will make good. The fact that it had already made good on more than 40,000 jobs is proof enough that it will also make good on your job.

**One-third More Heat at a Third Less Cost**



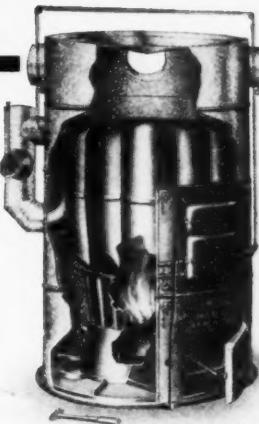
XXth CENTURY Heaters and Boilers burn hard or soft coal and screenings—they develop the full heating energy of this fuel by means of an exclusive, patented, air feed and sideburning fire pot which burns the fuel from the outside towards the center. This fire pot gives perfect and complete combustion, prevents waste of fuel and actually produces more heat at less cost than any other heating system.

*Prompt, scientific installation is part of XXth CENTURY service*

Selling a XXth CENTURY heating equipment is only part of our service. We also see that it is quickly and scientifically installed by thoroughly experienced men.

There is a great deal to this service—and it means much to you. We should be glad to tell you more about it, and also send you our catalog No. 40 and prices if you write us—today if you please.

THE XXth CENTURY HEATING & VENTILATING CO., Akron, O.



## Your Best Seller

—*a house that's CAMPBELL heated*

Good for everybody concerned—the men who build, sell or buy—all will thank the good fortune that put them in touch with the Campbell's.

GUARANTEED TO HEAT TO 70 DEGREES—in bitter weather with moderate heat for mild days.

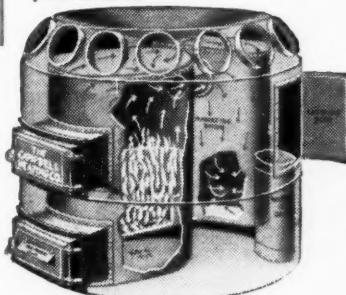
MOIST, CLEAN HEAT—This is because of the extra sized reservoir and the door in the jacket which permits cleaning.

### Campbell's Winter-Chaser

ECONOMY OF FUEL—More good reasons for this than we can tell in a short space—all the result of science, experience and honesty.

AND THE CAMPBELL WINTER-CHASER LASTS—Hundreds of Campbells have been giving faithful service for nearly 30 years.

OUR INSTALLATION PLANS ARE PERFECT—Get the benefit of that expert service. It will make a fine impression on your clients.



GET OUR 1913 SELLING PLANS—Write today for our proposition; it's bound to interest you. We'll send booklet too, and full particulars. Address

**Campbell Heating Co.**

1221 Walnut Street  
DES MOINES, IA.

## You and Your Customer Make Money

THE KALAMAZOO Furnace—sold direct—is far cheaper for the builder, yet it will allow you a *liberal* profit. That's because you and your customer have no jobbers' and middlemen's profits to pay. Besides, the



## Kalamazoo Furnace

is easy to install. Our furnace experts will back you—give you *blue prints* that show where every piece goes. You can't make mistakes. You can do the work easy. Results are guaranteed. For your next job specify a Kalamazoo. Then you are *sure* of giving your customer lasting satisfaction and making the best deal for yourself at the same time.

**Write For Ask For Catalog No. 947.** We'll tell you how to describe the building you want to heat. Then we'll prepare plans for a complete, practical heating system. Every owner will *boost* and bring you dozens of other jobs. Don't wait! Mail a letter or postal, for complete information NOW.

**KALAMAZOO STOVE COMPANY, KALAMAZOO, MICH.**

**"A Kalamazoo Direct to You"** And Gas Stoves Too  
Trade Mark Registered

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



No stooping. This little valve at TOP gives any desired heat in any radiator any time by a slight wrist movement.

## Working With the Carpenter and Builder

"Lift the heating burden from the shoulders of every carpenter and builder"—that's the motto of Vapor-Vacuum Heating Company, and a little investigation on your part will prove that we do this and **more**.

### Vapor-Vacuum Heating Kriebel System

you know, is the system that enables you to **guarantee** an actual 25-per cent saving in coal. By eliminating the air-RESISTANCE against which all steam and straight-vapor systems constantly work, and replacing it with a partial-vacuum ASSISTANCE, the heat is drawn and held in the lines, requiring less coal. That's how the V-V system works.

#### How Our Engineering Department Helps You

You simply send us a rough sketch of some job you are figuring on and, without charge, our Engineering Department gets you up a regular engineering layout of that particular job, to lay convincingly before your customer.

#### Send For Full Information Today

We haven't the space here to tell you all about this really remarkable system, but if you will get in touch with us at once, we will go into details, without obligating you one bit.

**Use the coupon, a postcard, anything—but WRITE!**

**VAPOR-VACUUM HEATING CO.**  
895 Drexel Building      **PHILADELPHIA**

CLIP, SIGN AND RETURN THIS COUPON, NOW

Gentlemen: Without obligating me, tell me how you work with the carpenter and builder, and send me your free book.

Name .....

Address .....

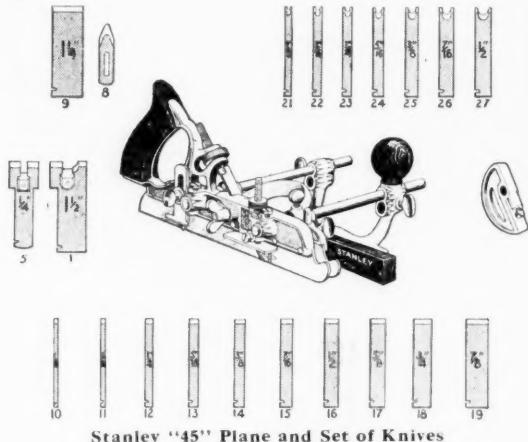
You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

#### Stanley "45"-Seven Planes in One

This well known product of the Stanley Rule & Level Company, New Britain, Conn., is not a stranger to many of our readers. However, the constantly increasing interest being shown in labor and money saving tools, warrants for those not familiar with this remarkable plane at least a small portion of their time.

Stanley "45" combines seven planes in one, in a compact and practical form. These are:

1. Beading and Center Beading.
2. Plow.
3. Dado.
4. Rabbet and Filletster.
5. Match Plane.
6. Sash Plane.
7. Slitting Plane.



Stanley "45" Plane and Set of Knives

When you consider that for the price of one plane you can secure seven, you will begin to appreciate what this tool really offers. Furthermore, while the "45" plane combines only seven distinct types, it accommodates cutters of different widths, so that in reality it replaces many more than just seven planes.

With each plane, ten plow and dado bits, seven beading tools, a filletster cutter, a sash tool, a match tool and a slitting tool are furnished—twenty-one separate cutters—all shown in the illustration above.

The manufacturers have prepared a very attractive twelve page booklet, which contains a complete description as well as full instructions for working.

They would welcome an opportunity of sending you a copy.



#### Blue Prints for Sash Joint Cutters

Huther Bros. Saw Mfg. Co., Rochester, N. Y., are now sending out blue prints to all those interested in the cutting of cope grooves for sash joints, asking that they fill in the dimensions of the saws required so that this concern can quote intelligently on such saws. Without doubt many of our readers interested in this class of work will be benefited by looking over these blue prints.



#### Cortright Shingle Proofs

Our subscribers will build new homes this spring. Some will put on new roofs, and of course every one wants the best, provided he can get it at the right price. Perhaps you have noticed the advertising of Cortright Metal Shingles in our columns. This roofing has been on the market over a quarter of a century, and roofs first put on are said to be as good as new today, and have never needed repairs. In fact, in the last issue of the Cortright Metal Shingle Advocate, a paper which the Cortright Metal Roofing Co. issue, they quote letters from several users who have used it for that length of time.

Send for a copy of this issue. They will send it to you free of charge. Write to Cortright Metal Roofing Co., 50 North 23rd Street, Philadelphia, Pa.



## About Schill Furnaces— And Why You Should Install Them

It makes no difference how nice everything about the place is if—THE FURNACE FAILS.

Just remember, contractors and builders, that the furnace is the sensitive spot in every house. Your clients expect good heating equipment—and you want to give it to them.

You want to give them a Schill Furnace because you and the home users can always depend upon it.

Schill Furnaces are always easy to install. They have no complicated parts and you can have no difficulty in setting them up.

Schill Furnaces are durable—they are well made throughout.

Schill Furnaces burn every speck of the coal—and produce heat from every bit.

Schill Furnaces have proven through years of severe use and under various conditions that they will burn RIGHT day after day—and at a reasonable operating expense.

Schill Furnaces are time tried and proven. They are designed practically and built practically in every particular.

Our Grand Empire Furnace (shown here) is all cast. It has our "New Idea" self shaking dump center roller bearing grate; large two-piece fire pot and various other particular Schill features.

We back Schill Furnaces with our 21 years furnace manufacturing experience—we stand behind every furnace we sell—and we help you install our furnaces. We have a special service department that will assist you and figure with you on every furnace job that you have. This service is FREE. Send for particulars and catalog—NOW.

Drop us a line for complete details concerning our furnaces. Do this before you decide upon any certain furnace.

**The Schill Bros. Company  
CRESTLINE OHIO**

## The Bovee Furnaces AT Manufacturer's Prices



Will give every one of your patrons most perfect results. They last longer and actually require about one-half the fuel used by other furnaces.

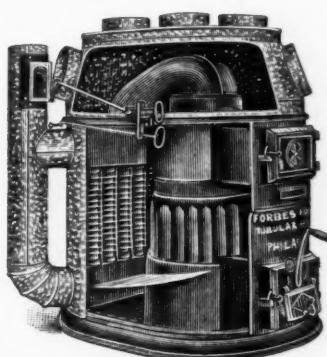
They are made heavy, of the very best material and workmanship. Take your rule and measure the fire pots, the large combustion chamber and the long travel of heat and compare it with all other furnaces and see WHY the Bovee

uses less fuel and lasts longer than others.

Get our special prices. We can save you 40% on a heating plant. Any handy man can install them.

**Bovee Furnace Works**  
50 Eighth Street Waterloo, Iowa

## FORBES?



What's in a name? Nothing? We fear you are mistaken. Ask anybody who has a "FORBES" FURNACE and you will find out why we are proud of the name.

Write to us and we'll tell you what's in the name of "FORBES" and what is in back of it!

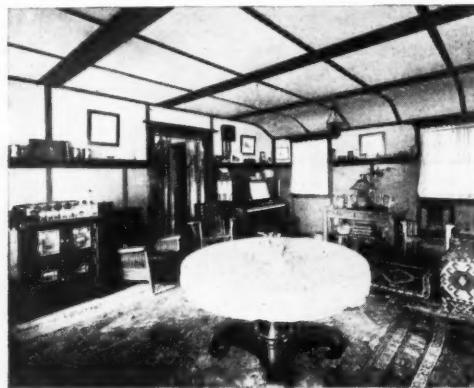
**Tubular Heating & Ventilating Company**  
Department "X"

232 Quarry Street

Philadelphia, Pa.

### Beaver Board as an Avenue to Profits

It is now very evident that Beaver Board has become a proposition with which the first-class carpenter, builder and contractor, needs to be as familiar as he is with lumber. This is primarily due to the fact that the material is becoming so widely known all over the United States and Canada. The quantity used for walls and ceilings has shown amazing increases in the last few years—largely because of the successful installations which increase its use in every town where it



The Dining-Room in Mr. George Klewer's House at Chicago, Ill., Gives One "Good Idea" of the Pleasing Effect to be had with Paned Beaver Board Walls and Ceilings

is introduced. It is constantly going into new territory because of wide advertising, backed by the article's quality and the Company's work in co-operating with inquirers and carpenters.

The necessary knowledge about Beaver Board, which enables carpenter, contractor, and builder to make profits out of its international reputation and favor, group themselves along two main lines:

First is such information as naturally belongs to a workman's knowledge of materials. He needs to know what Beaver Board is; how it is made; how it is put up. With this before him, he will readily realize the importance of skilled workmanship in Beaver Board installation. He will learn that while Beaver Board is easy to put up, the carpenters' skill and experience are necessary to obtain the most satisfactory results. He will find it advantageous to co-operate with the manufacturers, learning just what are correct methods and also getting from them ideas on design and kindred subjects.

The other line along which he will want to educate himself will concern Beaver Board as a means of profit to him. He will want to know how the demand for Beaver Board enlarges his opportunities as a business man. Here is where he can use his selling ability, and the first thing he should find out (besides the mechanical facts) are the advantages of Beaver Board. He probably knows that Beaver Board makes a complete wall, being more than a coating or covering, and also that it can be put on over old lath and plaster with success if that is desirable. As he becomes acquainted with its advantages he will see how widely it extends his field of usefulness and employment.

Among the more important advantages of Beaver Board are its durability and its economy. From either standpoint lath and plaster are not to be considered beside it. Beaver Board doesn't crack and never needs repairs; it makes a house warmer in winter and cooler in summer; it is sound-resisting. It is easy, quick and clean to put up, and the obvious points of superiority which group themselves around these facts often clinch a sale.

Another—and a big—reason for Beaver Board's popularity is the attractive appearance of Beaver Board walls and ceilings. It offers great latitude in design. The number of arrangements in the modern, approved panel style are almost

**UNDERFEED**

FURNACE      BOILER

Cuts Your Coal Bill  $\frac{1}{2}$  to  $\frac{2}{3}$

CARPENTERS and BUILDERS—The Underfeed building, because it **reduces** heating expense

Millions of readers of May periodicals will read these truths:

"The UNDERFEED way of coal burning insures a dollar's worth of heat for every dollar spent for coal. In all ordinary heaters  $\frac{1}{2}$  to  $\frac{2}{3}$  of every dollar thus spent goes up the chimney, absolutely wasted in smoke and gases. In the Underfeed, these valuable heat units must pass through the flames, are consumed and make more heat."

Cheaper grades of hard or soft coal, slack, pea and buckwheat sizes, which would smother fire in other heaters, in the Underfeed yield more heat than expensive grades in other heaters.

Coal is fed from below. Fire is always on top, in direct contact with all radiating surfaces. Combustion is perfect. No smoke, no gases, no clinkers and few ashes, easily removed by shaking the grate bar. There is no soot in an Underfeed and the fire-glow is

will ADD to the Renting or Selling Value of **any**  $\frac{1}{2}$  to  $\frac{2}{3}$  usual cost of coal.

always upon clean surfaces. In other heaters, soot-coated surfaces retard heat.

Underfeed heaters are adapted for both large or small buildings.

**THE PECK Williamson  
Underfeed FURNACES  
BOILERS**

Send us your building plans and we will furnish free engineering plans, actual cost of installation, and tell you where you can get your Underfeed.

Installed in unit or battery form in apartment houses, halls, churches, theaters, schools, etc., the Underfeed will add to your reputation as a builder of always comfortable houses.

Write TODAY for FREE Furnace and Boiler Book, which clearly explains the exclusive features of these economical heaters.

**THE WILLIAMSON CO., 436 W. Fifth Street, Cincinnati, O.**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## LOOK OUT FOR PACKED JOINTS

In a boiler packed joints mean trouble. Beware of them—The remedy is a boiler built of steel—firmly riveted together so it can't leak.

**Kewanee**

**Kewanee**

## KEWANEE FIREBOX BOILERS ARE BUILT OF STEEL

They can't come apart nor leak. Ask the old man behind the boiler. He knows boilers and he has known Kewanee Boilers for many years.

*Steel Boilers are rated conservatively—Don't over specify.*

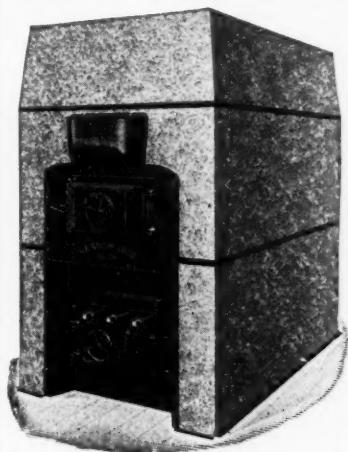
### KEWANEE BOILER COMPANY

Kewanee, Illinois

Steel Power and Heating Boilers  
Garbage Burners and Radiators

Branches: Chicago, Saint Louis  
New York, Kansas City & Salt Lake City

## BUY FROM THE MAKER



We have made and sold thousands of steel furnaces in Chicago, and we have sold them everywhere, by mail, direct to contractors, builders and house owners, all over the country, from Maine to China. We don't offer them through dealers, for the DIRECT DEAL with the consumer is the most satisfactory to all concerned. It means BETTER SERVICE—because of the direct interest of the maker in each contract—and it means BETTER PRICES, for the middlemen's profits are cut out.

In buying the Hess Furnace, you needn't have faith. You can buy it now, on trial, and test it before January 1st, 1914. We will deliver it at your station, with all

pipes and registers—freight prepaid.

Set it up and use it. If you're not pleased; not sure you have big value for the price—send it back to us—we paying return charges—and we won't claim one cent from you.

We don't offer you credit, however, for we require the price to be deposited with your local banker when you receive the goods. He holds it till the test is made, subject to the conditions outlined above, and gives it to you or to us, according to the result of the test. You take no risk, and you will save money.

Our furnace is made of steel, EVERY SEAM WELDED, and therefore permanently gas, dust, and smoke-tight. Made in six sizes, and burns any fuel. There is no furnace, better, at any price.

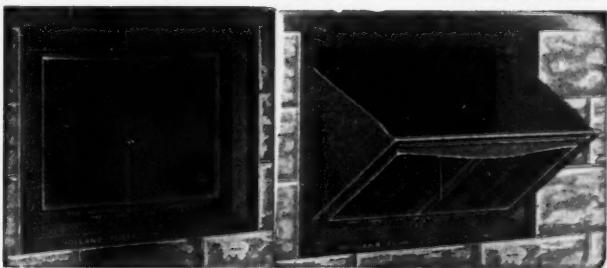
Our 48-page booklet on furnace heating is free. Ask for one. It will give you a lot of useful information on heating.

**Hess Warming & Ventilating Co.**  
920 Tacoma Building Chicago  
We make these beautiful white steel medicine cabinets, cheaper than wood.

## The Holland Window Chute

SAFE  
DURABLE  
BURGLAR-PROOF

STRONG  
PERMANENT  
INCONSPICUOUS



CLOSED—A Real Window OPEN—A Perfect Chute

The chute that is useful the year round. Begin installing them now. Any mason can set them. The strong simple chute that will not buckle or loosen. A heavy steel plate protects that glass when chute is used. There are no bolts or nuts to lose. It locks itself and can only be opened from the inside.

**OUR IDEA OF BUSINESS**  
First-class Goods—Reasonable Prices

*Don't wait. Get our FREE CATALOG at once.*

**Holland Furnace Co.**  
HOLLAND — MICHIGAN

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

# Big Savings For Contractors and Builders— *Buy Direct From Us at Wholesale Prices*



HERE'S the finest chance Carpenters, Contractors and Builders ever had to get their building material, lumber and millwork at *less than wholesale prices!* We ship everything for building direct to You, guarantee all goods to be absolutely new (no wreckage) and guarantee also safe delivery and perfect satisfaction. Send today for our brand new, 176-page catalog of Millwork and Building Material. It contains 3,000 superb illustrations and 8,000 bargains for you to save money on. Get our magnificent Book of Modern House Plans also. Send us your house to build and we'll get it done for you. We ship all lumber, flooring, doors, windows, moldings, porch-work, building paper, hardware, tinwork and roofing. Note the few bargains listed below.

*H. N. Mingers*  
President.

**Porch Post**  
CLEAR  
FIR  
4 x 4  
8 Feet  
**55c**

8000  
Price-  
Saving  
Bargains

Get  
Our  
Two  
Free  
Books  
Today  
**33c**



CHICAGO MILLWORK SUPPLY CO.

1437 W. 37th Street  
CHICAGO

**CATALOG  
OF 8000  
BARGAINS**

43

**PLAN  
BOOK**

53

Patent  
MILLWORK SUPPLY CO., 1437 W. 37th Street, Chicago, Ill.  
Gentlemen—Please send your  
Name  
Address  
or CATALOG No. 43  
or BUILDING MATERIAL  
PLAN BOOK No. 53  
House and Barn  
Plans

infinite, and there is no slightest excuse for unsightly interiors where Beaver Board is utilized. The manufacturers maintain a designing department which co-operates with the user to the fullest. Designs and color schemes are suggested for any jobs he may have, and the assistance of Beaver Board experts enables him to make every installation attractive.

Those carpenters who have kept in touch with Beaver Board during its years of development know how big a profit-maker it can be made. There are many cases, though, where even these men who have been using the material successfully and profitably can increase its use by a more thorough knowledge of the proposition. To them, as well as to those who have not yet informed themselves the manufacturers



An Attic in the Home of Mr. Harry S. Lewis of Beaver Falls, N. Y., which was Transformed into a Bright, Cheerful Bedroom by the Use of Beaver Board

offer complete information covering all details, and their hearty co-operation with anyone in the building trade. A series of advertisements which ran through THE AMERICAN CARPENTER AND BUILDER last year gave many interesting facts about Beaver Board; they have been reprinted in pamphlet form and will in themselves answer many questions. If you will write for a copy of the booklet to The Beaver Company, Buffalo, N. Y., they will gladly send it free. They will also be glad to show how carpenters have added to their income and reputation by being prepared to handle Beaver Board sales and installations in connection with their other work.



## An Automatic Sash Holder

The Automatic Sash Holder Mfg. Co., 52A Church St., New York City, have on the market a splendid little device that acts as a sash holder and does away with the usual pulleys, cord and weights.

The holder is mortised into the sash or frame and is invisible. It automatically adjusts itself to any shrinkage or swelling thus preventing the sash from binding. Being inexpensive and easy to install, and so simple that it cannot get out of order, it ought to prove a good way out of the trouble usually caused by the wearing out or snarling of sash cords.

As the Automatic Sash Holder can be placed in old or new sash and keeps the window from rattling, it would be a fine idea for our carpenters to write for circular matter pertaining to this article. It looks as if it might be less expensive to use than the usual cords and weights.

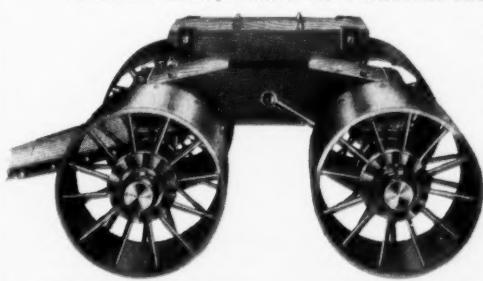


## Another Addition to the Dow Plant

The Dow Wire & Iron Works, Louisville, Ky., specialists in iron and wire fencing as well as artistic metal work for enclosures of all kinds, in addition to the two ovens and automatic pipe bending machine added a month ago, have increased the size of their warehouse by building a two-story addition 45 ft. by 50 ft. This will facilitate the handling of their carload shipments.

## This Ten Room House Was Moved 5 Miles

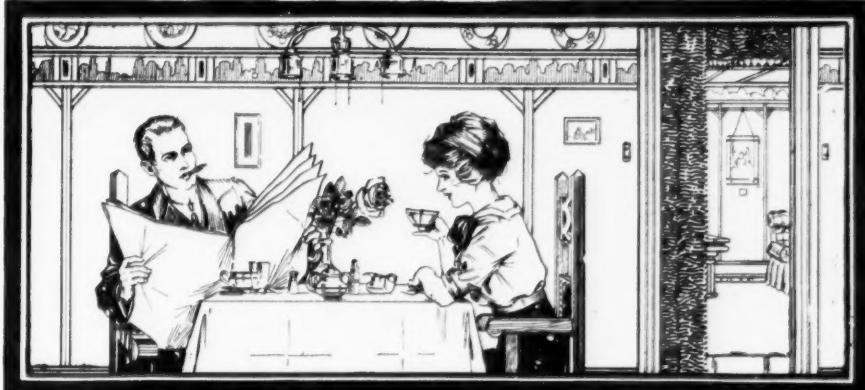
in ten days on LITTLE WONDER TRUCKS over country roads and broken fields. Any building can be easily moved for long or short distances on these trucks. Little Wonder Trucks are money-makers for Contractors and Builders.



The standard four wheel truck shown is perfect in strength, weight and durability. It will carry 40 tons. These trucks have 3 inch carbon steel axles and either cast iron or wood bolster as desired. The rear axle has special bracing.

Write now for catalog B showing full line of two, four and eight wheel trucks, capstans, rollers, jacks and all other implements necessary to house moving or raising.

**HOUSE MOVERS SUPPLY COMPANY**  
Eastlack Court Cedar Rapids, Iowa



**Twenty thousand carpenters and builders have written  
for a free sample of Utility Wall Board during the last few months.**

If you haven't had yours—sign the coupon.

# UTILITY WALL BOARD

is being used today in thousands of buildings instead of lath and plaster.

It is easier to put on than lath and plaster.

No dirt or mess entailed—it makes better, more permanent walls and ceilings.

It can be used in the dwelling—the factory—the office—the garage—is fire resisting and moisture proof. Its service is susceptible to the most artistic decorations—paint—tint—wall paper—burlap or any decorative matter desired may be applied with most satisfactory results.

Don't fail to mail the coupon.

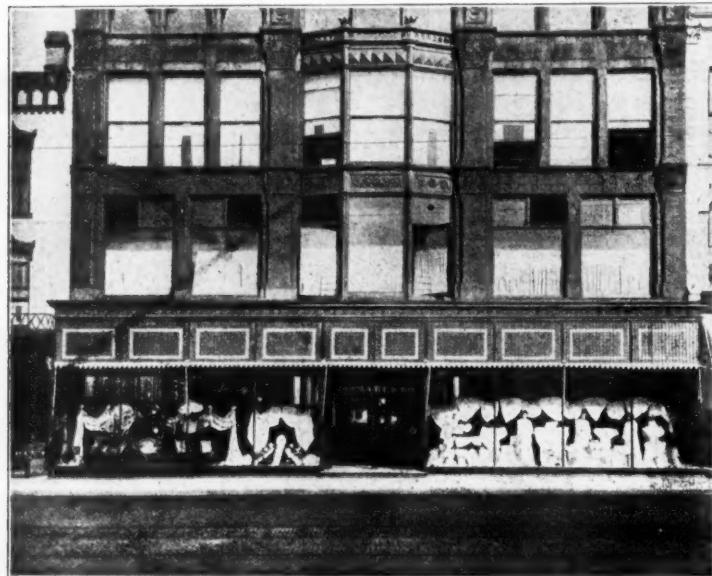
**THE HEPPES COMPANY**  
4503 Fillmore Street : : : : CHICAGO, ILLS.

THE HEPPE COMPANY  
Fillmore Street, Chicago, Ills.  
Please send me FREE OF COST, sample of  
Utility Wall Board and descriptive booklet.

**SPECIAL ATTENTION** if you tell Advertisers you read American Carpenter and Builder.

**Fine Example of Store Front Remodeling**

The beautiful non-frosting store front shown in the accompanying illustration has been recently installed by Love Bros., Inc., Aurora, Illinois. The building to which this front was fitted is quite an old structure and the space for window display was very limited. Moisture in damp weather and frost in cold weather obscured the display to such an extent that Love Bros., were called upon to do the necessary work that would modernize the building. The result exceeded the hope of the owners.



Store Front After Remodeling

With the new front additional display space is provided allowing the storekeepers to dress their windows with the certainty that their goods will not be hidden. The ventilated front has proved useful and practical. These modern steel and iron store fronts can be installed in any building new or old by any carpenter. If any difficulty is experienced, a special department maintained by the manufacturers will speedily adjust the trouble. Such a store front as illustrated gives a strong feeling of dignity and cleanliness otherwise hard to obtain. No one can realize the fine effect obtained unless he has before him the beautifully illustrated book sent free to those who ask for it. This book shows very clearly the detailed construction of the fronts as well as many fine examples of stores in which they have been used. We urge our carpenters and builders to write for it.

**Chelsea Dumbwaiters**

A first-rate little catalog has just been issued by the Chelsea Elevator Co., 330 West 26th St., New York City. This book contains several pages of interesting specifications and prices on various styles of dumbwaiters and elevators. The attention of our carpenter friends will be engaged by the plan drawings showing hatchway arrangements under varying conditions.

The Chelsea Elevator Co. have embodied in their machine all the latest improvements. They are standards in perfect modeling, workmanship and material. Many of our builders have had or will have calls to place dumbwaiters in homes, stores, restaurants or bake shops. Suppose you write for this catalog which will certainly prove worth while. It's free.



Allen County Memorial Building  
Lima, O.  
McLaughlin & Hulsker, Architects

**OUR METAL LATH****"TRUSS-LOOP"****CONSTRUCTION****IS****NO EXPERIMENT****IT IS THE RESULT OF OVER****20 YEARS****EXPERIENCE****And Thousands of Successful Installations****"THE LATH WITH THE PROOFS"****BOSTWICK STEEL LATH CO.,****50 Hurlbert Street  
NILES, OHIO**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



High School, Manchester, N. H.  
Wm. Butterfield, Architect  
The Head & Dowst Co., Contractors

## ATTENTION! Carpenters! Contractors! —Forward, March

right over to the Post Office today and Mail us Your Name

## WHY? You Ask

Because we wish to offer You FREE a mighty useful and time saving Tool of great daily convenience.

This tool is the handiest ever invented and should be in every Carpenter's "Kit," but Is Not.

**Don't Miss having It—Send Name right along—first come—first served**

**Sherman & Wright**

First National Bank Building  
Pittsburgh, Pa.



St. Joseph's Parochial School, St. Joseph, Mich. Roofed with Asbestos "Century" Shingles. J. C. Schwerdt, Architect — John Wallace Sons Co., Contractors, both of St. Joseph.

### ASBESTOS "CENTURY" SHINGLES "The Roof that Outlives the Building"

NOW you can get a *Red* Asbestos "Century" Shingle roof at practically the same cost as a gray one. Specify *Veneered Red* Shingles. They have Indian Red face with gray back—uniform in texture—fire-proof and indestructible.

Write for names of representative roofers who can supply Asbestos "Century" Shingles—and for Booklet, "Roofing: a Practical Talk."

**KEASBEY & MATTISON CO., Factors  
Dept. B, AMBLER, PENNA.**

Branch Offices in Principal Cities of the United States

*This advertisement appears in May Magazines read by owners and tenants of the better class of buildings. Write to above address for trade prices and terms.*

### MONTROSS METAL SHINGLES



## A Good Roofing Means Good Material and Perfect Construction

Montross Metal Shingles embody both these features; 33 years successful test has proven the claim. Critical care in manufacturing and selection of materials safeguards you in using and us in guaranteeing 10 to 30 years efficient service, according to grade ordered. Made in sizes from 10 in. to 20 in. x 28 in., which is the limit of safety on a roof. Contraction and expansion soon destroys larger sheets and wastes your money.

Oil painted, or hand-dipped, Galvanized, carrying fully one third heavier Zinc coating than ordinary Galvanized Iron.

*Send for Catalogue. You can make money taking contracts to cover buildings with our Roofing.*

**Montross Metal Roofing Co., 2nd and Erie Sts., Camden, N. J.**



### Adjustable Torpedo Level and Plumb, No. 601

A strictly high grade tool in workmanship, finish and accuracy. Its shape makes it convenient to slip into vest or any pocket as a lead pencil. If your hardware dealer cannot supply you, write us and send us his name. Manufactured by

**THE SOUTHBURY HARDWARE CO.**  
Southbury, Conn., U. S. A.

Dimensions—9 in. long, 1 1/4 in. deep, 5/8 in. thick in center, tapering ends, made of rosewood highly polished, tips top and bottom inlaid with brass. Accurately tested bottles well protected.



## Those Barns Will Need Weather Stripping

The Schouler Patent Weather Strip and Guide is the only practical weather protection for barn, garage or factory sliding doors. Can be used on any type of sliding door—easily applied. It is made of heavy metal and wears forever.

Get our catalog and other details.

**Schouler Cement Construction Co., 144 Frelinghuysen Ave., Newark, N. J.**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## Clow Cast Iron Specialties



**A-2187**  
Ex. Hy. Cesspool, Long Outlet

Size of top.....In.	12x12	16x16	18x18
Depth.....In.	10	10	10
Size of outlet.....In.	3	4	6
Length of outlet.....In.	10	10	10
Painted, net Each	3.09	3.58	7.15



**A-2185**  
Extra Heavy Cesspool

Size of top.....Inches	16x16
Depth.....Inches	10
Size of outlet.....Inches	4
Painted, net Each	2.00



**A-1700.**  
Cleanout Cover and Frame

Size.....Inches	27x27
Size of frame, outside.....Inches	27 $\frac{1}{4}$ x27 $\frac{1}{4}$
Height of frame.....Inches	4
Price, Standard, net.....Each	\$ 9.00
Price, Extra Heavy, net.....Each	18.00



**A-2015**  
Grating with Loose Frame

Size, inches.....8x8	10x10	13 $\frac{1}{4}$ x13 $\frac{1}{4}$	18x18
Grate only, net.....80	.98	1.43	1.80
Grate and frame, net.....83	1.28	1.88	2.25



**A-1945**  
Grating

Concave, diam.	19	in., net, each	\$3.38
Convex, diam.	22 $\frac{1}{4}$	in., net, each	3.75



**A-1955**  
Cast Iron Bar Strainer

Diameter.....4	5	6	7	8	9	10
Net, each.....07	.09	.11	.18	.23	.28	.37



**A-2200**  
Air Brick with Sliding Ventilator

Size.....Inches	8 $\frac{1}{2}$ x5	17x2 $\frac{1}{4}$	17x5
Price, net.....Each	2.59	2.59	5.17



**A-2201.**  
Air Brick

Size.....Inches	8 $\frac{1}{2}$ x5	17x2 $\frac{1}{4}$	17x5
Price, net.....Each	2.20	2.20	4.40

Send For Catalogue 39

**James B. Clow & Sons**  
**CHICAGO, ILL.**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### S. & D. Floor Scraper

A brand new floor scraper, and one that really has some brand new ideas, is now being placed on the market by Sprague & Dexheimer, Box 594, Boonton, N. J. This is known as the S. & D. floor scraper, and is illustrated herewith. The illustration shows plainly one of the new features in the up-turned blade. By simply loosening two set screws, the knife jaw turns up so that the blade can be sharpened without taking it out. This is a feature that should prove a big time saver.

The weight on top of the machine is adjustable, and can be moved back and forth by means of a set screw. If necessary, the entire weight can be lifted off. The entire weight of the machine in action is 110 pounds.

Another feature is the handle action. The handle has a lever attached at its base, and arranged to allow some play, so that added pressure on the floor can be given, or to take off all pressure entirely.

In pushing forward the blade can ride free, and in pulling backward, the weight and pressure can be regulated by the handle. The blade itself is adjustable to any angle by simply loosening a set screw and the knife jaw can be swung in a full three-quarter circle if necessary. The blade is fastened in on the vise principle—there is no groove in it, and there are no set screws through the blade. The blade can be resharpened and used down to one-half inch.

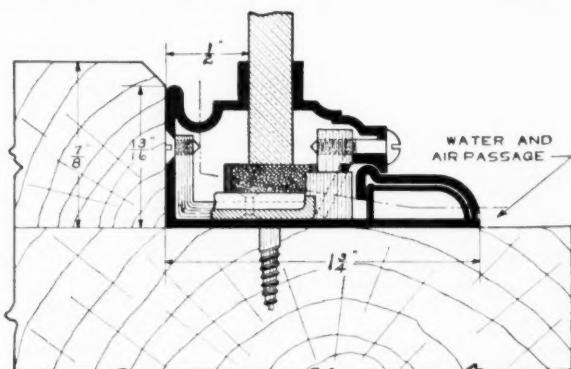
The manufacturers guarantee the workmanship of this scraper and every care has been taken to make it right. All holes are reamed to a true fit. The rubber tires (3/16-inch) on the wheels are in-set one-sixteenth inch, so they cannot work loose.

The S. & D. machine is furnished complete with wrenches, four blades, files and burnisher. It is sold at a very reasonable price. For terms, write to Sprague & Dexheimer, Box 594, Boonton, N. J.



### A New Store Front Construction

The Ventwell Store Front Company of Cleveland, Ohio, is introducing a new construction for store fronts, which will undoubtedly appeal to architects and contractors as



Details of "Ventwell" Sill Construction

# THE "STEEL TENON SYSTEM"

**"A Method of Fastening Wood Corners Without Mortising, Gluing or Nailing"**

The "Steel Tenon" is a patented device, consisting of a flat sheet of High Grade steel with projecting swaged wings, made in a variety of sizes suitable for construction of screens, sash, doors, panel work and all kinds of butt joints, etc.

Price of Tenons exceedingly low—Equipment for using is light and inexpensive, consisting of a clamp and slotting machine—both of which are valuable acquisitions to shop or factory for general use independent of this system.

With Slotter and Clamp no great skill or experience required—an inexperienced man or boy of average intelligence quickly becomes an adept.



**LISTEN!**—No matter what method and equipment you are now using, by adopting "STEEL TENON" you will SAVE TIME, LABOR, MATERIAL and MONEY—increase the DEMAND for your products—make MORE and LARGER profits.

It is endorsed and recommended by all who have used or seen it used, as a now necessary and indispensable device.

It is popular with Architects, Contractors, Builders and Carpenters, Owners, Big and Small Factories, and Small Jobbing Shops.

The "SYSTEM" makes Neater, Stronger and more durable screens, sashes, frames, etc., than the old style wooden tenon and mortise.

Saves 33⅓% of Material by eliminating waste of wood in the mortise and attaining a superior frame with  $\frac{1}{3}$  Thinner Lumber.

Saves 50% cost of Labor.

***The "System" and Equipment Guaranteed to Give Satisfaction or Money Refunded***

FOR PRICES AND FULL PARTICULARS ADDRESS:

**THE LEADER SALES COMPANY :: :: DENVER, COLORADO**

### Cash Prices

F. O. B. Seattle

#### Mixed Carload Prices on Lumber, F. O. B. Seattle

No. 1 Common Fir, sized—		
2x4, 8, 12, 14, 16 ft.	\$12.00 per M	
2x6 and 2x8, 8, 12, 14, 16 ft.	11.50 per M	
2x10, 8, 12, 14 and 16 ft.	12.50 per M	
2x12, 8, 12, 14 and 16 ft.	13.00 per M	
1x4 or 1x6 S 1 S Common Fir.	11.00 per M	
1x8, 1x10 or 1x12, S 1 S No. 1 Common Fir	12.50 per M	
1x6-No. 2 Clear and Btr. Fir Drop Sliding	21.00 per M	
½x4-No. 2 Clear and Btr. Fir Ceiling..	18.00 per M	
½x4 or ½x6-No. 2 Clear Cedar Bevel Siding, random lengths.....	24.00 per M	
1x4 No. 2 Clear V. G. Fir Flooring.	28.00 per M	

Write for our "Delivered Price" List.

**We Can Save You from \$75 to \$200 per Car and Guarantee the Quality and Count**

You can actually get as good quality of lumber, shingles, sash, doors, and millwork, grade for grade, from our own mills as you have been buying, for one-third less, provided that you order a carload at a time, (for an average size house), and pay for same upon receipt at your station.

**Read This—We Have Others**

DEAR SIRS:—Find everything O. K. Could not purchase such grades here. Material all nice, straight and clean. Will soon send you another order. J. O. CUNNINGHAM,  
Contractor, Wilson Creek, Wash.

# We Will Sell You LUMBER

(Rough and Dressed)

LATH AND SHINGLES  
: Sash, Doors and Millwork :

# DIRECT

From our own Mills, in and near Seattle, Wash.  
in carload lots

We are manufacturers of best reputation established in Seattle for 30 years—at the same place. Until recently we sold on the dealer-and-credit plan, but now sell direct to the home-builders who do not require credit. Manufacturing concerns, railroads, contractors and builders are patronizing us freely and saving big money, while retail dealers knock our plan and our products in self-defence.

We guarantee satisfaction. If we can only send you the first carload, you will be our steady customers. We can furnish ample references as to quality, reliability and honest dealings.

Send us your "bill" and let us quote you our price delivered at your station, or at least get our "delivered price" list. It will pay you to know how much you can save.

**NEWELL MILL & LUMBER CO.**  
8th Ave. So. & Charlestown St.  
SEATTLE, WASH.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

possessing many important advantages both in construction and window service efficiency.

The Ventwell store front is made of copper with steel reinforcement which corrects the acknowledged structural weakness of solid copper, but retains the remarkable wearing and non-corrosive qualities of copper than which no better metal can be found to withstand the severe test that constant exposure to the elements inflicts.

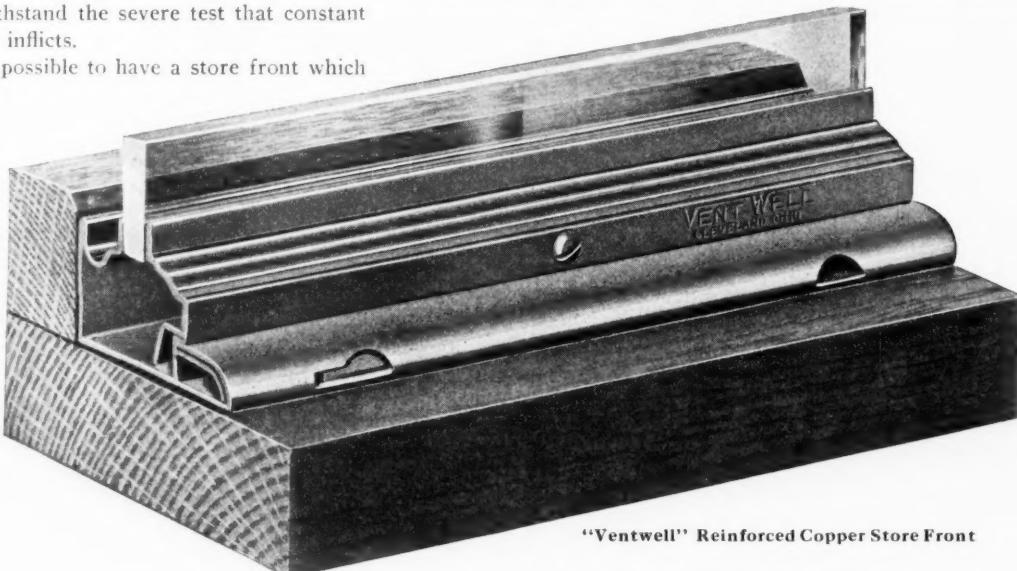
Ventwell now makes it possible to have a store front which combines the structural advantages of steel with the durability of copper, and is further characterized by unusual adaptability of design to any class of store, old or new, and its attractive appearance.

Another exclusive and important feature of Ventwell is a new device or slide for controlling the ventilation from the outside, which should appeal to architects and contractors in the interests of their clients as the only correct method of ventilation to insure having a dust-tight window in the summer and a frost-proof window in the winter—both of which are essential to the merchant who expects to operate window display without frequent suspension and loss resulting from damaged goods.

The Ventwell store front system of reinforced copper has

met a persistent demand for a lower priced copper store front without cheapening its quality or construction; and the Company's success is an indication that it has a store front system worthy of investigation.

This Company is now executing some very large contracts in various parts of the country and would be glad to furnish



"Ventwell" Reinforced Copper Store Front

any of our readers with complete information, catalog and samples. It also employs a staff of designers and estimators which is available to any who might be interested in having suggestions, sketches, or estimates submitted. When writing address your communication to The Ventwell Store Front Company, Noble Building, Cleveland, Ohio.



## We Can Show the Most Skeptical the Superiority of Copper Bearing Open Hearth



# ROOFING TIN

Long research and *actual service tests* have proved indisputably that Copper Bearing Steel makes a better and more lasting roofing plate. That is why we use Copper Bearing Steel exclusively for Roofing Tin.

Copper Bearing Roofing Tinnes are stamped "C.B. OPEN HEARTH" in addition to the brands. Look for it. We also manufacture Apollo Best Bloom Galvanized Sheets, Black Sheets of every description, Formed Roofing and Siding Products, Tin Plates, Special Sheets, Etc. Write for full information and booklets.

## American Sheet and Tin Plate Company

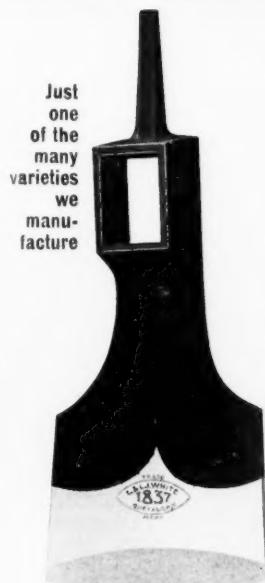
General Offices: Frick Building, Pittsburgh, Pa.

### DISTRICT SALES OFFICES:

Chicago	Cincinnati	Denver	Detroit	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City								
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle								

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

# The Famous "WHITE" Adze



Just one of the many varieties we manufacture

Our Adzes are Superior in 3 Ways  
QUALITY—TEMPER—HANG

If you are going to buy an Adze, all we ask is for you to just try ours once. We will guarantee that you will be more than satisfied.

Perhaps you have used some of our other edge tools. If you have, all we need say is—the Adze is the same quality.

It is cheaper to buy a good tool than a poor one. You can do more work and better work with a "WHITE" Adze, and at the same time not work so hard for our tools keep their edge. The "hang" is right, too, which make some difference—you know how much.

76 YEAR'S EXPERIENCE



WRITE TO DAY

FULLY WARRANTED

**The L. & I. J. White Company**  
BUFFALO, NEW YORK



## Electric Starting Gasoline Engines

Here's the only farm engine that needs no cranking to start. Touch an electric button and the fly wheels start spinning. This is a most successful labor saving device ever invented. Eliminates nerve trying starting troubles entirely. Write today for full facts about the

### Electric-Starting WOODPECKER

—the farm engine that contains over 50 big points of perfection. Note these strong features: Self-priming gasoline mixer, insuring easy cold weather starting; speed regulator, permits adjusting speed while the engine is running; self-contained power plant, protects pipes, wires, ignition, etc. Steel girder sub-base saves the cost of foundation. Develops big surplus over rated horse power.

**30 Days Free Trial** —NO MONEY DOWN. Write for our proposition on getting an Electric Starting Woodpecker to do your work 30 Days Free. Mail postal today

The Middletown Machine Company  
246 First St., Middletown, O.

Gas—  
Gasoline—  
Kerosene, 1½ to  
50 Horse Power.

**30 Days  
Free Trial**



## ODD DOORS

The delay in getting odd doors costs you money. We can manufacture and ship special doors in **One Week** from receipt of order.

Write us for further information.

**The Belmont Mill, Inc.**  
Manufacturers of Millwork

3037-47 No. Western Ave. - Chicago, Ills.



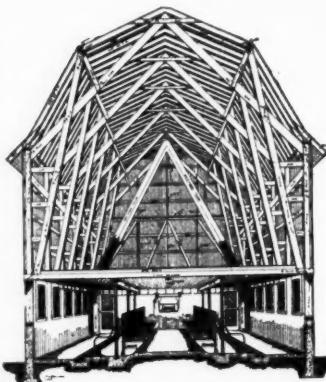
WHEN YOU BUILD A HOME NATURALLY YOU WANT TO BUILD IT FOR COMFORT AND CONVENIENCE AND GET THE MOST FOR YOUR MONEY.

Therefore send for our "NEW WAY" Home Plan Book which shows you how to save from \$100 to \$300 in building a home, and also shows the latest and most modern ideas in homes of all types, including large residences, cottages and bungalows, ranging in price from \$1,200 to \$12,000. Send 50c. in stamps or money to JOHN THOMAS BATTES, Grand Rapids, Mich.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## How to Make More Money Building Barns

Every man in the building business can have the benefit of W. D. James' barn knowledge and use it to his own advantage and profit. There's more money in building up-to-date, properly equipped barns on scientific principles than in putting up the old type. The right kind of a barn means an enthusiastic owner, and that means more jobs in the same neighborhood.



### Get Our Special Blue Print and Building Service Offer

Mr. James is the foremost authority on dairy barn building, and he wants to make you a special offer of complete working blue prints of several practical dairy barns of different sizes and types. In addition to Mr. James' personal co-operation, you can have help from our architectural department, conducted by experts. Write today for all the facts regarding this service.

### James Manufacturing Co.

A. H. 75 Cane Street

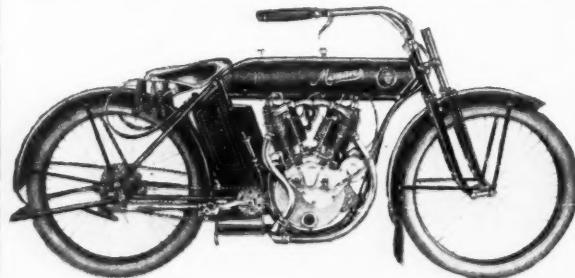
Ft. Atkinson, Wis.



#### This Valuable Book Free

tells about new and better construction—lighting—size—site—drainage—general equipment—King system of ventilation; gives floor plans of successful barns. Your copy—**Free**—if you answer these questions: For whom do you expect to build or remodel dairy barns? (Give names and addresses). When? For how many cows? Send your application now for book and complete information.

Single 5 H.P. \$225      MONARCH      Twin 10 H.P. \$275



### Power - Speed - Durability - Class

The last word in Motorecycle construction. The 10 h.p. twin is indeed the ideal mount. Power enough to go anywhere and more speed than you will care to use, and yet so flexible that it will start on a walk and operate with ease in the busiest traffic.

The single in either V belt or chain is the only machine for the man that wants plenty of power but does not care for a twin.

We would like to post you further; so please address Sales Dept.

**IVES MOTORCYCLE CORPORATION**  
OWEGO      TIOGA CO.      NEW YORK

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### Free Book on Flooring

In a little book under the title of "Oak Flooring" the author Mr. W. L. Claffey has given much authoritative information in regard to the laying, scraping and finishing of oak floors.

The statements given are the result of ten years practical and intimate experience in connection with the subject of how to lay floors, finish them and care for them to the best advantage. We all have something to learn even in things which we think we know all about and "Oak Flooring" certainly adds a number of things that are well worth knowing. Oak flooring is very often badly abused through ignorance or carelessness in laying and finishing, so the free information at your disposal should be accepted in the spirit of good will with which it is tendered.

If you will write W. L. Claffey, Secretary, Oak Flooring Manufacturers' Association, Detroit, Mich., a copy of "Oak Flooring" will be sent you free of charge. Get this Book.



### The Originator and the Home of "Art-Kraft"

The photograph shown herewith is that of Mr. C. A. Weirich, the Treasurer and General Manager of The Canton Metal Ceiling Company, Canton, Ohio, who is also the orig-



C. A. Weirich of the Canton Metal Ceiling Co. is the originator of the well and favorably known "Art-Kraft" metal products for all interior and exterior building purposes.

Mr. Weirich has been identified with the sheet metal industry for a great many years and it is largely due to his long training and experience, both in the factory and office, together with his natural aggressiveness and initiation, that The Canton Metal Ceiling Company have enjoyed remarkable success from the start.

This Company manufacture metal ceilings, side walls, fronts, tile and shingle roofing; and handles a complete line of sheet metal products for every class of building.

The "Art-Kraft" metal ceiling designs are something decidedly new and striking for wall and ceiling decoration. There is a pleasing touch of character and refinement about



## STAMPED STEEL TILING

Just the thing for  
Bathrooms, Kitchens, Restaurants,  
Butcher Shops, etc.

### AND ITS RIGHT IN YOUR LINE

Real tile frequently becomes loose and falls off. This cannot. The studding or plaster is first sheathed with narrow, dry boards and the metal put on with small nails.

#### SIX PATTERNS

Furnished with Baked White Enamel finish—or simply prime painted Metal trim Cap Base, Corners, etc., supplied or you can use wood trim.

**NORTHROP, COBURN & DODGE CO.**

29 Cherry Street, New York

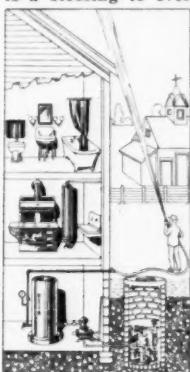


## INSTALL Your Own Running Water and Heating

Builders, contractors and home owners—my big, new book tells you how to install your own water system, modern heating plant and bath-room outfit. You can easily install a running water system or a modern heating plant from the complete plans and instructions furnished to you free. The saving is enormous. Before you build, before you make improvements, send for my free book.

### How to Save on All Material

My method for saving on all material is a revelation even to the most experienced contractors and builders. Get the free book and see for yourself. You get guaranteed material at the lowest bed-rock bottom price. My money-saving method is a blessing to every builder and home owner.



### Gibbons New Method

Every home, even the smallest cottage, can now have running water or a heating plant. Churches, halls and schools can have these improvements at a low cost. My free book explains all. Write for it today.

### Book Free

My new book gives you greater buying power than your local dealer. Thousands of things illustrated and priced. Gasoline engines, hydraulic rams, pumps, pipes, valves, electric lighting plants, acetylene lighting plants, all accessories, everything guaranteed. You certainly ought to have this book. Send today.

**M. J. Gibbons, Dept. 2419, Dayton, O.**



LIVING ROOM

showing Oscillating Portal Wall Bed with a combination writing desk, book case and dressing mirror on the front of the bed. A buffet, book case or furniture of any kind, may be used. By utilizing the front of the bed for a piece of furniture, you save the wall space that this furniture would otherwise require, and perfectly conceal the fact that there is a wall bed in the room. All of the drawer and locker space of the furniture is available.

# Wall Beds

We are the Pioneers of the wall bed industry. We particularly recommend our latest achievement, the Oscillating Portal Wall Bed, which is an absolutely sanitary bed. We also make the old style recessed Upright Wall Bed, which has the wooden frame work under it. To introduce our wall beds more extensively in the eastern and middle States, we will sell at cost, and prepay the freight charges to any part of the United States, where we are not represented, for a limited time only. Write for literature and particulars today.

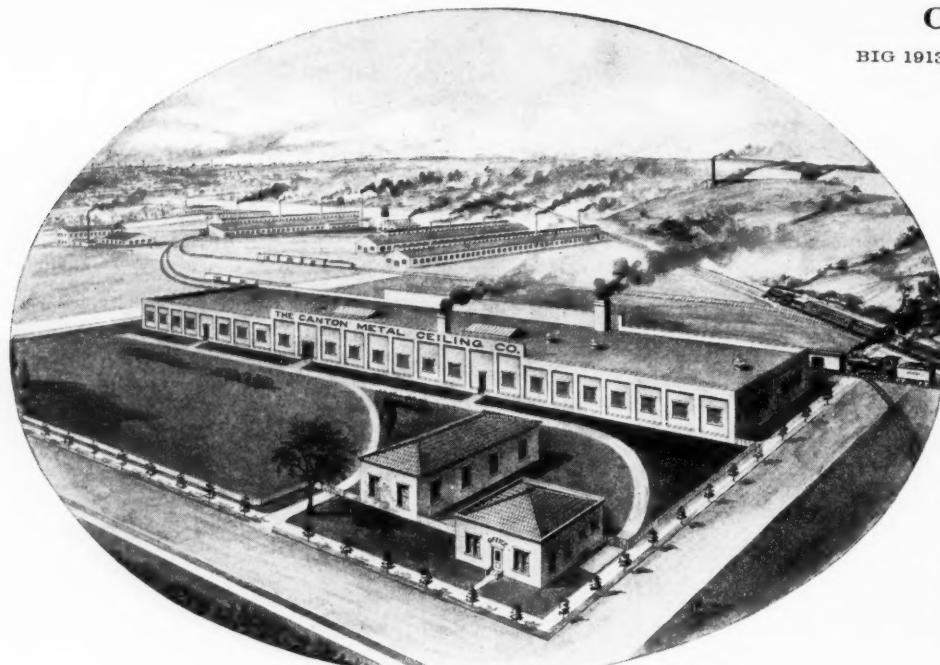


BED ROOM

with an Oscillating Portal Wall Bed, showing entrance to the closet while the bed is down. No additional door is necessary to permit free access to the closet. The bed is all metal, is full size, standard height. It has no frame work underneath to collect dust or VERMIN. When the bed is not desired, the bed room is immediately transformed into a perfect living or dining room.

**Marshall & Stearns Company**

**San Francisco, Cal.**



Modern Factory of The Canton Metal Ceiling Co.

them which results in making it possible to have distinctive artistic effects, for the home, store or office.

Two handsome new catalogs, one covering metal ceilings, and the other metal tile and shingle roofs are now being sent out free by this Company and any of our readers may have one or both by sending name and address to The Canton Metal Ceiling Company, 1947 Harrison Ave., Canton, Ohio.

learn from the Mead Cycle Company, the largest bicycle manufacturers in the world, who are making preparations to fill the demand.

Those expecting to invest in a bicycle should write the Mead people at Chicago, addressing Dept. P-122, for their 1913 catalog, which, by the way, is the most comprehensive ever issued by this well-known bicycle company.

### Cycling Rivals Auto

BIG 1913 SALES SHOW BICYCLE IS STILL THE EXERCISE KING

What is more bracing than a fifteen-minute bicycle ride in the invigorating morning air?

More people are taking to the bicycle as a means of exercise than ever before.

To the man who is tied up in an office six days out of every week, a bicycle ride before and after work each day, and into the country on Sunday, braces him up for his work; he sees the beauty of Nature, and has a better understanding of Her.

Exercise before breakfast each morning starts one off for the day with clear eyes, and a clear brain. And a clear brain is necessary these days.

The demand for bicycles during 1913 will be larger than ever,

Residence of Mr. Ignatius Horstman, Atlantic City, N. J. Covered with J-M Transite Asbestos Shingles. Betram Ireland, Architect. W. S. Bigbee, Builder.



## A Shingle Roof as Durable and Fire-proof as a Stone Foundation

The weak spot in the average dwelling has heretofore been the roof. Wooden shingles rot, warp, loosen, etc. And they readily catch fire. Slate and tile split and break. And their great weight puts a severe strain on the rafters.

But J-M Transite Asbestos Fire-proof Shingles haven't a single one of these faults—haven't a single weakness of any kind.

## J-M Transite Asbestos Shingles

are as fireproof and durable as a stone foundation. For they are all mineral—literally stone shingles. Made of Asbestos and Portland Cement.

Asbestos is a rock; and, like all rock, it is fire-proof and practically everlasting. And everybody knows that Portland Cement is the most permanent building material ever discovered. Buildings of cement construction erected by the Romans over 2,000 years ago are still in good condition.

More pleasing effects can be obtained with J-M Transite Asbestos Shingles than with any other kind of roofing material. J-M Shingles are furnished  $\frac{1}{8}$  in. thick with smooth edges and  $\frac{1}{4}$  in. thick with rough or irregular edges. They are made in different shapes and sizes, and in colors of gray, red, green and slate. Furnished punched for nails and ready to apply.

They weigh about a third less than slate. Thus they are much easier to handle and do not require such heavy rafters.

They are non-conductors of heat and keep a building cooler in Summer and warmer in Winter.

Write nearest branch for full particulars

## H. W. JOHNS-MANVILLE CO.

Albany  
Baltimore  
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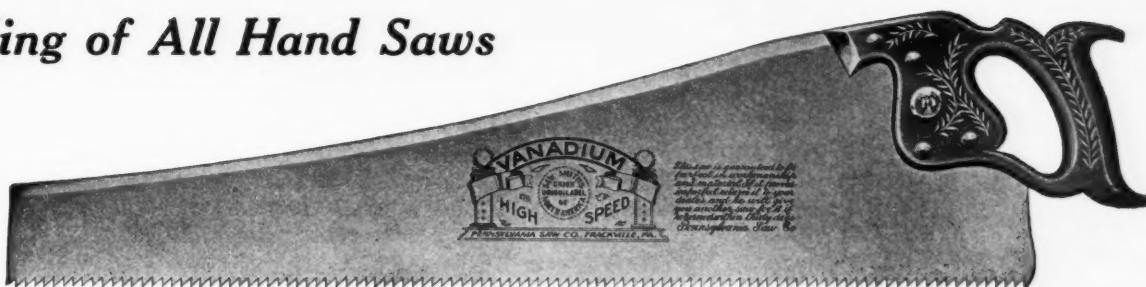
THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED  
Toronto      Montreal      Winnipeg

Vancouver

1615

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## The King of All Hand Saws



## Vanadium High Speed Guaranteed Hand Saw

**STRAIGHT OR SKEW BACK, IN HAND, PANEL, SHIP CARPENTER OR RIP  
ANY TEETH DESIRED**

THESE Saws are made from VANADIUM HIGH SPEED STEEL, hardened and tempered by a secret process, highly polished blade, extra thin back, piano finish carved handle, improved brass screws. These Saws represent the highest attainment of the sawsmiths' art and cannot be excelled. The best hanging and best cutting Saw in the world. Binding guarantee etched on every blade.

Practically every tool has been improved within the last twenty years with the exception of the hand saw—the machinist gets his taps, dies, reamers, twist drills, etc. in the very highest grade of HIGH SPEED TOOL STEEL—This is what we are now giving the carpenter in our VANADIUM SAWS—the highest grade steel known to the tool makers' art—producing a wonderful Saw, which literally "SMILES AT NAILS."

### Guaranteed Forever Against Faulty Workmanship

Ask your dealers for  
VANADIUM Hand Saws  
or write to

**Pennsylvania Saw Company**  
General Sales Office: 1000 Betz Building, PHILADELPHIA

## CONCRETE-LIGHTING-STANDARDS

Offer the ideal means of lighting any street, business or residential, either in small towns or large cities. They are **practical** and **artistic**. **A well lighted street increases property value, affords better protection and is a town's best advertisement.**

### Beautify the Homes You Build

Install Concrete Lighting Standards along the private driveways; on either side of the gateway or the entrance steps. Place them in front of stores and public buildings. **A well lighted street is the business man's best asset.** You'll have no difficulty selling Concrete Lighting Standards. Everyone is interested in them.

### Make Bigger Money

Get acquainted with this modern system of lighting. It can be used in every city. Be the first to grasp this opportunity in your neighborhood.

### My Free Booklet

will tell you how easy it is. Send for it. It will help you double your income. I shall be glad to figure on any special designs of molds or standards that you may submit to me. **I save you money.**

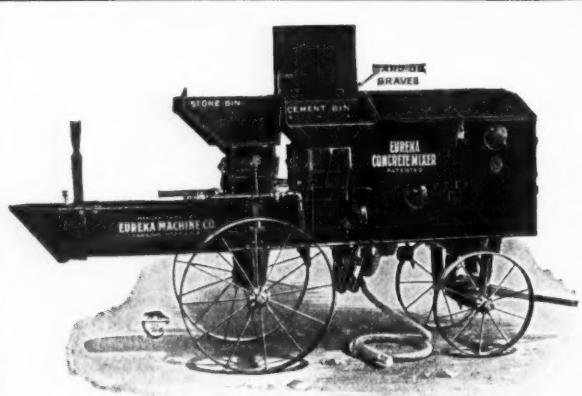
**GEO. W. EDGCUMBE**

177 Fair Avenue

The Post Man

Benton Harbor, Mich.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



This Size was Designed For the Building Contractor

# Eureka Mixers

have mixed the concrete and mortar for scores of large engineering projects where thorough mixing and economic production were vital elements.

Eureka mixed concrete has been used in some of the largest and most beautiful edifices in the world.

The Eureka completely satisfies contractors' engineers and architects alike.

**We will Personally Guarantee to any Contractor, a Saving of One-Half in Labor over Hand Mixing, a Thorough, Uniform Mix, and Full Rated Capacity.**

It is time for you to fall in line with organizations of wide experience who are rapidly discarding old equipment and adopting the up-to-the-minute Eureka as standard.

As a matter of precaution we suggest an early conference with the Eureka representative in your territory. Complete Catalog No. 30 mailed upon request.

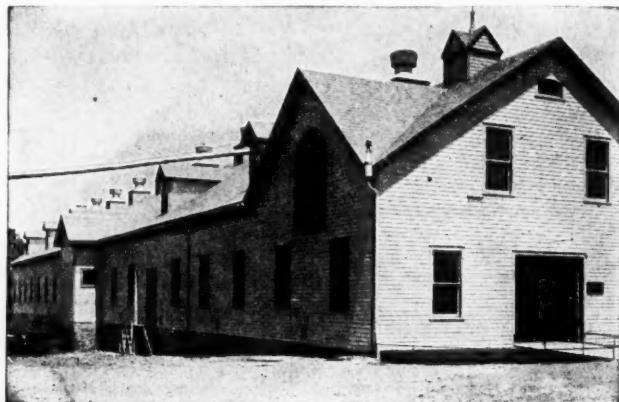
**EUREKA MACHINE CO.**  
85 Handy Street LANSING, MICHIGAN

#### DISTRIBUTING POINTS

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1 Madison Ave., New York City.  
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Rhodes Sts., P. O. Box 1594.

#### Insuring Proper Ventilation

Since several states have wisely enacted laws to compel the thorough ventilation of public buildings, more attention is being given to this feature in every class of building now being erected. This is a big praiseworthy move toward the preservation of the public health.



Dairy Barn of the Clifton Springs Sanitarium, Clifton Springs, N. Y.; Equipped with Royal Ventilators

It may prove quite a problem to many builders how to get just the exact ventilation. In this connection might be mentioned the product of the Royal Ventilator Co., whose ventilators are being generally adopted on a large number of the biggest buildings throughout this and foreign countries. Royal ventilators are the double cone style made in every size and shape to suit any condition. Either the metal or glass top can be used. They are storm-proof and durable. These ventilate from the ground up—not from the roof down. Every bit of foul air is removed and there is no back draft. The removal of foul air and the substitution of fresh air is a continuous process going on day and night in fair or stormy weather. The illustration shows a dairy barn of the Clifton Springs Sanitarium, Clifton Springs, N. Y., equipped with Royal Ventilators.

We want all of our friends, the carpenters, builders and architects to make ventilation a particular feature of every building put up. Write the Royal Ventilator Co., 417 Locust St., Philadelphia, Pa., if you want their free book on ventilating systems.



#### Detroit Storm Tests Store Fronts

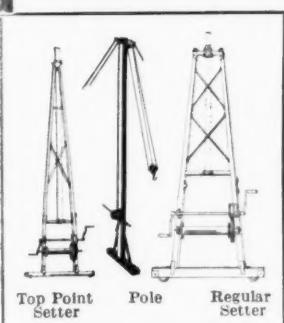
On Friday, March 21st, Detroit was visited by the most severe wind storm in the history of the city. The gale reached a velocity of 86 miles an hour, which in some parts of the country would be considered a hurricane. In every part of the city signs were torn from their fastenings, chimneys were knocked over and in the downtown district, the big plate glass fronts began to fail under the pressure and were crashing on every side.

An interesting result of the storm has just been brought to the attention of the Detroit Show Case Company who manufacture the Petz Bars for store front construction. On investigation they found that, although there is a widespread use of their bar throughout their home city, there was not a single instance in which glass set in Petz Bars had been broken. In Siegel's and Owen's big fronts, which show the largest and most extensive plate glass frontage in the city, the glass held perfectly against the terrific wind pressure.

The Detroit Show Case Company are particularly pleased by the record made by their bar, inasmuch as it was frequently shown that other styles of store fronts in the immediate vicinity to their own, failed to stand the pressure. It was a particularly strenuous test and the makers of Petz Bars are to be congratulated on the wonderful showing.

# SASGEN

Circle Swing Derricks  
For Builders and Contractors



\$36.00 for this Lightweight Champion Derrick Complete. A practical hand power derrick for hoisting timber, joists, flooring, frames, etc. Capacity, 1,500 lbs.

\$45.00 buys the Reinforced Derrick complete with 150 ft. cable. Capacity 2,000 lbs. An excellent derrick for the price.

\$130.00 is the price of the 14 ft. boom Stiff Legged Derrick with split mast and boom equipped with Double Drum steel hoisting Winch and all necessary blocks. Can be used hand or power Capacity, 2 tons.

## PAY FOR THEMSELVES ON ONE JOB

by cutting down your pay-roll and reducing the cost of construction. These derricks are easily operated. One man does the work. No power or horse is necessary to hoist. They have been successfully used everywhere to hoist timber, concrete, cement, brick, sash, etc. The SASGEN CIRCLE SWING DERRICKS have a full circle swing of 12 feet which enables the load to swing clear of the wall. When the load is up it can be swung back out of the way. No carrying is necessary. These derricks

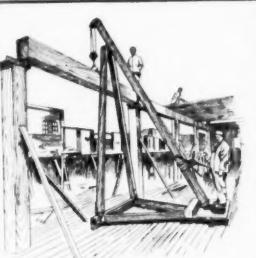
## DO THE WORK OF FIVE MEN

better and quicker than the men themselves could do it. Think what a saving that means. It won't require much figuring for you to decide that you cannot afford to be without a SASGEN CIRCLE SWING DERRICK.

## SHIPPED ON FIVE DAYS FREE TRIAL

They sell on their merits and will be shipped on FREE TRIAL to any reliable contractor or builder. Order one of these derricks today or write for our CATALOG NO. 2—SHOWS HOW TO SAVE MONEY.

**SASGEN DERRICK CO.** 2053-57 Racine Avenue Chicago, Illinois



Sasgen "A" Frame Builders' Derrick. Price complete \$45.00.



Write for catalogue O and see how easy it is to wheel a building a mile in a day—and how little the cost is for La Plant outfit compared with the profit to be made in moving houses instead of wrecking them.

**LA PLANT TOOL CO.**

1100 E. Nevada St.

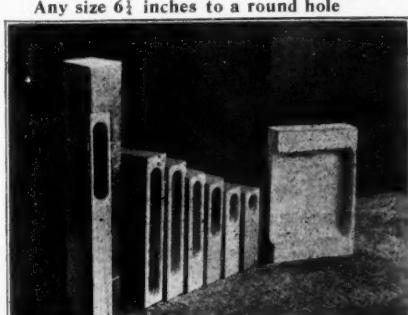
Marshalltown, Iowa

## THE LA PLANT HEAVY HOUSE MOVING TRUCKS

When you get a job with an old building on the lot—move it with the La Plant Trucks to another place—instead of wrecking it. There is more profit in it for you.

La Plant Heavy House Moving Trucks are made of steel—on scientific lines—are interchangeable so they can be worked singly, in pairs or in fours.

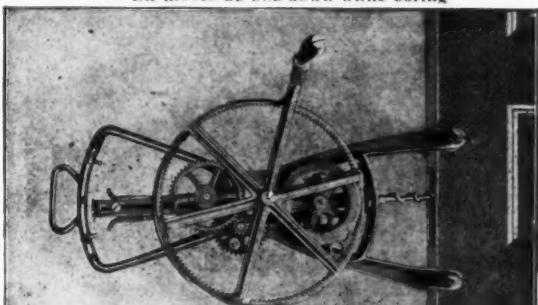
Any size 6 $\frac{1}{2}$  inches to a round hole



Cuts mortise perfectly true and clean. Straight in at top and bottom, with straight back wall.

positively makes complete a mortise for locks, doing the work from start to finish. No other tools required.

The only tool of its kind.

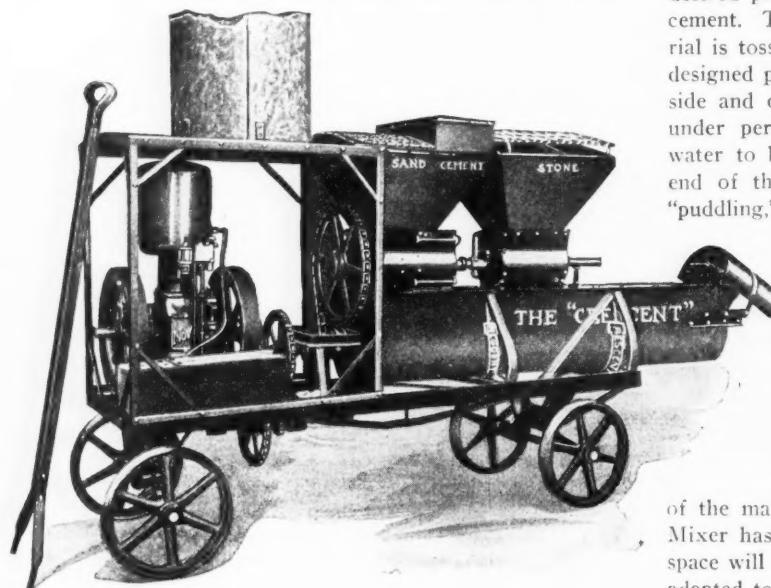


**Perfection Mortise Machine Co., Columbus, Ohio**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

### A Safe and Sane Mixer

There is no need for us to go into details and explain why you need a concrete mixer or what a fine thing it would be for your business. You know all that. You also know that concrete mixers have practically done away with the "shovel



The Crescent Concrete Mixer

mix" and are proving time-savers and money-makers. Consequently we have boiled down some facts about a mixer that should interest you. We want to call your attention to this because it's so simple and easily understood.

Crescent Mixers are made in two sizes. Size 1 has a capacity of from 20 to 30 cubic yards a day while that of size 2 is from 60 to 70 cubic yards. These mixers are provided with a 2½ H. P. gasoline engine. A cupped cylinder forms a self-proportioning device which can be adjusted to any desired proportion and accurately measures sand, gravel and cement. The mixing takes place in the trough and the material is tossed over and over and double mixed by a specially designed paddle. The spraying attachment extends along the side and over the end of the trough. The spray is always under perfect control and permits any desired amount of water to be introduced into the mixing trough. The dump end of the trough is arranged so that it can be used in "puddling," the top coat for sidewalks.

All exposed edges of the trough and bin are reinforced with heavy angle steel securely riveted. The banging of shovels or barrows has no effect on such construction. The frame and structural parts are of heavy steel, specially trussed to give great strength. Brass oil cups are provided where necessary to allow lubrication. A notable feature is the absence of gears which usually are easily broken.

These few facts so briefly stated are but a few of the many excellent points our inspection of the Crescent Mixer has developed. We wish we could tell you more but space will not allow. In short it is an admirable machine well adapted to the needs of the contractor and builder and looks like a good investment. The Crescent Mixer finds ready sale which seems a most convincing proof of its reliability.

As you will want to get further details, we refer you to the manufacturers, Raber & Lang Mfg. Co., 810 Mill St., Kendallville, Ind. Their catalogs are sent free for the asking.

## Bigger Profits and Better Results with KNO-FUR METAL LATH

Metal Lath was used in this bungalow at Winchester, Mass. Cost, \$2,400 complete, ready for occupancy.



**Contractors and Builders!** Our FREE Booklet on KNO-FUR LATH contains a lot of information that you **ought** to have on Metal Lath Construction. It tells why KNO-FUR LATH is more profitable to you, and more satisfactory to the owner, and gives many other reasons why it is superior to the old-style methods. Send for **Booklet 37** before you forget it.

### KNO-FUR METAL LATH

For outside use has a web-like mesh that completely embeds itself in the plaster. The parallel ribs increase its strength and provide a substitute for furring. It's use eliminates sheathing, building paper and weather boards.

It is made from metal specially prepared to resist acid and rust. It is rigid and imperishable. **Kno-Burn Metal Lath** for inside walls and ceilings means no warping, cracking or buckling, and the plaster simply **can't** come off. FREE **Booklet 33** tells all about it. Send for one.

We can ship KNO-FUR within 48 hours of receipt of your order

**NORTH-WESTERN EXPANDED METAL CO.**

**903 Old Colony Building, Chicago**

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

**The Builder**

**THE IRWIN Bit**  
Reg'd. U.S. Pat. Office

all sizes and styles for every purpose, the Irwin is sure to give lasting satisfaction under every condition—6,500 styles and sizes to cover every need.

The care in making assures perfect service. Ask your dealer, or write us about it.

**THE IRWIN AUGER BIT CO.**  
*Largest in the World*  
Wilmington, Ohio

Station E 18

THE builder picks out the Irwin Bit. He's sure of good results when he sees the Irwin stamp.

The Irwin Bit, made of one piece of extra high-grade crucible auger-bit steel, and tempered by the secret Irwin Process. The Irwin cannot bend or break where twist and shank unite—the weak spot in ordinary bits. Its hand-filed sharp edges are sure to cut quick and true into the hardest wood, yet will not tear the softest material.

Being the only solid-center-stem bit made in

all sizes and styles for every purpose, the Irwin is sure to give lasting satisfaction under every condition—6,500 styles and sizes to cover every need.

The care in making assures perfect service. Ask your dealer, or write us about it.

**THE IRWIN AUGER BIT CO.**

*Largest in the World*

Wilmington, Ohio

Pick up a Keen Kutter draw knife or spoke shave and you'll feel that the tool is a part of you. They are adjusted to give perfect balance and hang—to enable you to make a thin shave or a good deep cut.

**KEEN  
KUTTER**  
*Quality Tools*

E. C. SIMMONS  
**KEEN  
KUTTER**  
TULLETON COMPANY

are scientifically designed to give the best results and make your work easy. The trade mark guarantees any Keen Kutter tool will give satisfaction or the dealer will refund your money.

*"The Recollection of Quality Remains  
Long After the Price is Forgotten."*

Trade Mark Registered.  
—E. C. SIMMONS.

If not at your dealer's, write us.

**SIMMONS HARDWARE CO., Inc.**

St. Louis	New York	Philadelphia
Toledo	Minneapolis	Sioux City
		Wichita

## Every poor shingle roof gives you a threefold opportunity:



Repair the roof—

Increase your profits—

Increase your reputation—

Instead of re-shingling this roof and giving the owner a temporary job (for the life of shingles compared to the life of the house is but temporary,) why not suggest to the owner that you can cover these shingles with

## GENUINE BANGOR ROOFING SLATE

*Outlives the building without paint or repairs*

The public is more and more awakening to these facts:

There is no more sense in renewing roofs, than there is in renewing walls or foundations.

The cost of a roof does not end with the cost of putting it on, but includes the cost of keeping it on, of keeping it intact.

You can put on a roof of our slate for very little more in first cost than a shingle roof and the owner will find it the most economical in the long run.

That is why carpenters and builders who push our slate find their business increasing through the recommendations of well satisfied architects and owners.

**Genuine Bangor Slate Co.,**

Besides, we maintain a Special Trade Help Department that assists our friends in the trade, to build up a highly satisfactory and highly profitable slate business.

It costs you but a cent to let us tell you more about it.

As a progressive builder you certainly want to keep up-to-date on this subject. Write us today. Fill out and send the attached coupon before you forget it.

Genuine  
Bangor Slate  
Company,  
Drake Building,  
Easton, Pa.

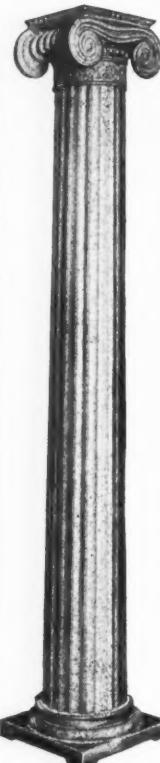
Gentlemen:—Please  
send particulars about  
your offer to help me  
to more profits

Name.....

Address.....

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## Durability, Strength and Beauty,



the three essential requisites for an ideal column are embodied in

## Union Metal Columns

(PATENTED)

They are made of combination high-grade steel and cast iron, and are therefore free from such serious defects as splitting, opening up of glued joints, warping, rotting, etc., etc.

UNION METAL COLUMNS are made of the same high-grade materials, and by the same processes, dies and machines, that we use in the production of our popular lines of ornamental lamp posts which are in universal use on the streets of the leading cities and towns throughout the U. S. and Canada. This is the evidence of their real substantial nature as compared with a column made of wood.

How long would a lamp post made of glued-up scrap lumber last, if placed upon the public streets of a city?

UNION METAL COLUMNS are made in all sizes, from the smallest to the largest. Prices are very reasonable.

Send for our new art catalog, mailed free of cost to you on application.

**The Union Metal Manufacturing Co.**

SOLE MANUFACTURERS

1400 Maple Avenue - CANTON, OHIO

Design No. 214

## The Fireplace in the Home

One thing above all others that tends to make an inviting, cheerful, comfortable, beautiful and complete home is "The Open Fireplace" and its fire of dancing flames and flickering glow.



Home is What We Make it—Make it Cosy with an Open Fireplace

Every home builder does well to install the most modern system for heating his home, but he should not let the hot air furnace or steam hearth push the fireplace and hearth fire entirely out of his home, for, listen, who ever heard of "the family" gathering around a furnace register or a steam radiator to have a family chat? Not much, but the open fireplace with its blazing hearth fire has the magnetic attraction.

The pity of it is that the fireplace, one of the most important features of the home for a time past, had been so much neglected. However, it is pleasing to note that in recent years it has again been coming back to its own, and the American people especially are awakening to the fact that custom had discarded and thereby deprived them of one of the most cheerful and health giving features that any home can possess, "the open fireplace," and home builders are again putting them in. If you are going to build be sure to put in fireplaces, which add so much to the joys of home life. Be sure to make provisions for fireplaces in the living, dining and bedrooms. The extra cost should not be considered when you realize what a boon and comfort they bring in return for the price you pay. It is not so much what you pay, but what you get for your money that counts.

Health demands pure and constantly changing air, and there is no more efficient and economical method of ventilation for the home than the open fireplace. The fireplace is worthy of the utmost consideration for new residences or even old homes which might be remodeled by putting in more fireplaces. Parties intending to build or remodel should think it over and write to Moermann & Otten, located at 611 and 613 Main street, Cincinnati, Ohio. They are thoroughly experienced in this particular line and will cheerfully give any information desired.

*Bestwall*

## Put Fire Proof Walls In All Your Buildings

The best way to find out whether a wall board really is fire-proof—and can live up to the other claims made for it—is to get some and test it out for yourself. This is just what we want you to do with Bestwall. You'll be convinced after your investigation that Bestwall Wall Board is positively fire-proof.

## Bestwall Wall Board Will Not Warp or Crack

You'll also learn that you can put up this mineral compound wall board without any danger of its buckling or shrinking at the joints; that's because it's non-absorbent and can't expand or contract.

Bestwall offers a surface for a fine variety of wall treatments. If you use our crack filler at the joints the unbroken walls can be papered, painted or calcined in a manner certain to please you. Bestwall walls can also be panelled with splendid effects by using strips wherever needed.

Bestwall is first and last a building material for you carpenters.

For full particulars about this wall board write to Bestwall Manufacturing Company.

**Bestwall Manufacturing Company**  
1247 First National Bank Building, CHICAGO

Warehouses: Cleveland, O.; St. Louis, Mo.; Kansas City, Mo.; Lincoln, Neb.; Louisville, Ky.; Stuttgart, Ark.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.

## THE SECRET OF SUCCESS

is simply getting your building material at lower prices than your competitor does. You can outbid him on contracts and still put up as good a building. Do your buying at the lowest market. Our large factories enable us to cut costs.

### PRICES TALK! LISTEN

to a few examples of good value taken from our big FREE CATALOG. Remember this—low prices do not mean poor quality. WE GUARANTEE EVERY ARTICLE WE SHIP TO YOU. If you are not satisfied, we refund your money without trouble.

	Per Roll	100 Sq. Ft.
Unito Challenge Roofing	\$ .90	\$5.00
Unito Granite Roofing	2.35	5.50
Unito Barn and Silo Paint per gal.	70c	4.00
		2.75

Our big catalog contains more price cuts. It's worth having. Write for it today.

UNITED FACTORIES CO., Contractors Dept., Room 716, CLEVELAND, O.

**PLASTERCON**  
TREATED  
WOOD FIBRE.  
**WALL-BOARD**

**How a Guaranteed Wall Board Protects You**

Plastercon is the only wall board in which

**Every Panel is Guaranteed**

relieving you from the possibility of dissatisfied customers and financial loss.

Plastercon is fast displacing lath and plaster in mansions, cottages, offices, factories, and new and remodeled buildings of every description.

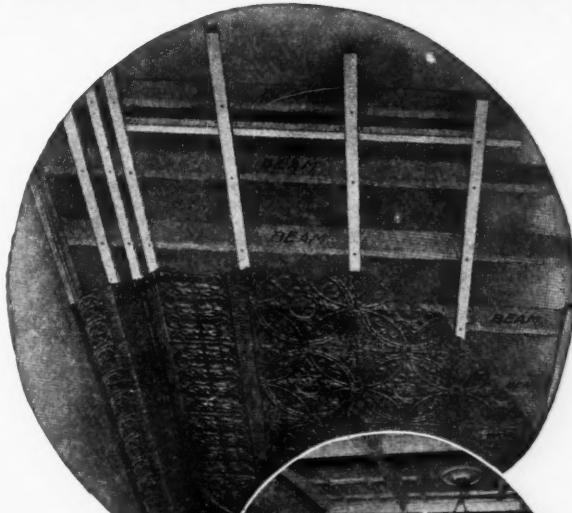
**Write Us a Line**—We'll gladly and promptly give you information and tell you how to get Plastercon jobs.

**PLASTERCON WALL BOARD CO.,**  
TONAWANDA, N. Y. - Dept. A - U. S. A.



An attic bedroom made cozy and attractive with Plastercon.

**DO YOU WANT MORE BUSINESS?**



MORE BUSINESS usually means MORE PROFIT. You can get MORE BUSINESS by putting up

**Brooklyn Metal Ceilings and Sidewalls**

The excellent quality and durability of our products increase the satisfaction and arouse the enthusiasm of the consumer.

This is the big thing in getting the business. Satisfied consumers boost your work and repeat their orders whenever possible.

**INFORMATION ON REQUEST**

**Brooklyn Metal Ceiling Company** 285 Greene Avenue BROOKLYN, N.Y.



**Write for samples—**

If you think that NEPONSET Wall Board is not ENTIRELY different, write for samples of all

**THREE FINISHES**  
**NEPONSET**  
**WALL BOARD**  
FOR WALLS and CEILINGS  
**BURNT LEATHER**  
**CREAM WHITE**  
**PLAIN OAK**

With waterproofed surfaces.

**BIRD & SON**  
[F. W. BIRD & SON]  
Established 1795

East Walpole, Massachusetts  
25 River Street  
New York Chicago Washington  
San Francisco Portland, Ore.  
Canadian Plant, Hamilton, Ont.

**Makes The Most Practical Walls**

**C**OPO-BOARD walls and ceilings are ideal from every standpoint.

**Strength.** They have actually held buildings together in California earthquakes.

**Durability.** Many still in good condition after 13 years' service.

**Fire Resisting.** They will hold a fire in check long after a plaster wall would crumble.

**Cold and Heat Resisting.** Absolutely air-tight; Compo-Board walls as far North as Alaska are known to keep homes comfortable.

**Damp Proof.** Keep homes dry and sanitary.

**Beauty.** Their smooth surface is easily and artistically decorated by any method; don't have to be paneled unless desired.

**Economy.** Cheaper than lath and plaster in the long run.

**Saves Time in Building**—from 15 to 30 days—no waiting for plaster to dry, no muss to clean up—a more satisfactory job—a pleased client.

Compo-Board is sold in strips four feet wide and one to eighteen feet long, by dealers in most every town.

Write for sample and booklets and learn all about the "modern wall lining."

**Northwestern Compo-Board Co.**  
5777 Lyndale Ave., North :: Minneapolis, Minn.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



### Truly, it is the Paint That Lasts

Under the severest climatic conditions, the home covered with **Bridgeport Standard Prepared Paint** retains its beauty of appearance. "I have painted my building only twice in 23 years, both times using your paints," writes a correspondent; an experience typical of thousands of home owners.



#### ECONOMICAL and DURABLE

It spreads easily and has great covering capacity. Two generations of conscientious architects, builders and painters

have used it on the interior and exterior of some of the most famous and luxurious homes in the country.

Send for our booklet on "Modern Painting for Beauty and Protection"—also for color cards. Free on request.

#### THE BRIDGEPORT WOOD FINISHING CO.

New Milford, Conn.

NEW YORK

CHICAGO

BOSTON

### All About Grinding

"The Abrasive Age," is a promising looking journal just issued by the Carborundum Co. It contained in the March number a very interesting article on disc grinding and sanding. The process as applied to furniture and foundry products is nicely illustrated and described.

It can be truly said of the disc grinder that it is one of the handiest tools a carpenter can possess. Years ago parts requiring an accurate finish were done by a slow process of milling, planing or surface grinding. Later with the introduction of sandpaper a crude disc grinder was made. This consisted of a large sheet of sandpaper stretched over a rapidly revolving wooden disc. Later improvements in abrasive materials tended also to change the disc grinder until today we have the fast cutting artificial abrasive stones.

The Carborundum Co. are the only manufacturers of carborundum. Being pioneers in this industry they have built up factories and a business in high-grade abrasive materials which rank with the largest in the world. Carborundum and Aloxite, another of their products, have literally ground their way into the favor of all builders. Carborundum is a shop word and wherever spoken it is instantly connected with all that is best in sharpening stones or abrasive cloths. Whether it be in the foundry, workshop, planing or saw mill, the Carborundum people may be counted upon to furnish the kind of stone that will do the best work.

This company will, we are sure, gladly furnish any of our readers with a copy of their monthly magazine "The Abrasive Age." Don't fail to write for a copy, for it contains more useful hints than we can speak of in this space. While you're about it, you might ask them for their catalog too. If you like their magazine and would like to be put on the mailing list all you have to do is to ask them and you will receive the magazine regularly. Address the Carborundum Company, Dept. A., Niagara Falls, N. Y.

There is only one way to get this Flex-A-Tile question rightly before you—and that is to send you a free sample. That is what we want to do—if you'll sign the coupon.

## FLEX-A-TILE ASPHALT SHINGLES

are made of the toughest, heaviest, absorbent felts, saturated with the most durable waterproofing properties known—asphalt—the weathered side receiving an extra heavy coat of pure asphalt into which is rolled chipped slate or granite—this is done under tremendous pressure until it becomes part of the roofing material. Flex-A-Tile is very pliable and can be made to fit any angle and curve.

**THE HEPPES CO.**  
1010 45th Street Chicago, Illinois

#### Don't Fail to Mail Coupon

THE HEPPES CO., Chicago, Illinois

Please send me free of cost sample of Flex-A-Tile Asphalt Shingles and description book.



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# Fair Play for Contractors



## Mr. Carpenter-Contractor:—

The 1913 Copyrighted Edition of **The Contractors Red Book** is now ready for distribution.

**The Contractors Red Book** is the one book which gives the Carpenter-Contractor a fair and square deal.

**The Contractors Red Book** is not a mail order catalogue, and will be sent to Carpenter-Contractors only.

**The Contractors Red Book** is a 96 page Price Book, profusely illustrated, of convenient size for carrying in a coat pocket, and is the only Price Book issued that co-operates in every way with the Carpenter-Contractors in the distribution of Lumber and Millwork.

**The Contractors Red Book** is fully protected by Copyright, and is issued only by Barrows & Donnellan Co., Manufacturers of Lumber and Millwork, the Largest Company of its kind in the United States selling its products exclusively through Carpenter-Contractors.

**The Contractors Red Book**—also Our Plan For Co-operating with Carpenter-Contractors (the long-felt need of the Carpenter-Contractors)—will be mailed **Free**, provided your request is received on your Letter Head or Business Card, to identify you to us as a Carpenter-Contractor.

## Write Today—Limited Edition—New Idea

Address your request to

**Barrows & Donnellan Co.** 8700 Erie Avenue  
CHICAGO, ILLINOIS

Yards at Chicago and  
East St. Louis, Illinois



## Is the Roofing FOR YOU

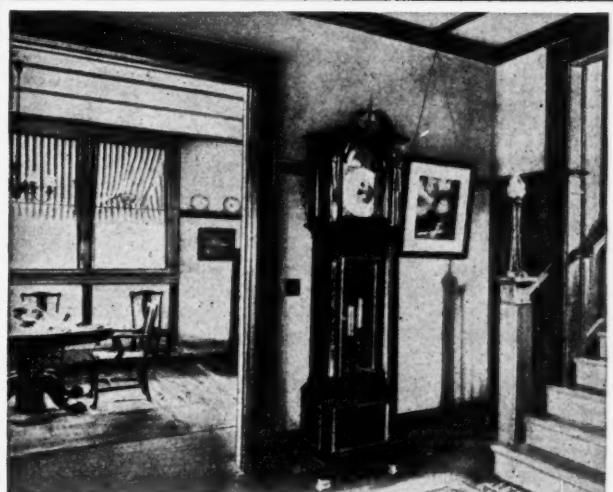
If you are interested in a roofing giving a warm, coppery red tile effect—more durable than shingles or metal, yet less expensive.

If architectural beauty, ease of laying, surety against leaks, extremely fire resisting and absolute permanency appeal to you look no further for roofing—**ZOLIUM** is what you want.

**ZOLIUM** is backed up just as you want it to be. It will serve you well.

Send for sample and booklet A-C-1.

**Flintkote Manufacturing Company**  
88 Pearl St.      BOSTON, MASS.



*Your Customer  
will be delighted with*

## Roberds Ideal Wall Board

It makes such a beautiful interior finish at such a reasonable cost. It can be painted, papered or tinted and lasts forever. It never gets shabby, never cracks, peels, chips or warps and is proof against vermin, heat, cold, fire and moisture.

Roberds Ideal Wall Board comes in sheets all ready to be nailed to the studding. Your cheapest man can apply it without previous experience. No muss, no confusion, no delay and no disappointment.

*Our special proposition to carpenters and builders  
is unusually attractive. Write for it today and we  
will send you full particulars, samples, prices, cata-  
log and testimonials from other contractors.*

**The Roberds Mfg. Company**  
100 Railroad Street :: MARION, INDIANA

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



**Flat wall finish is THE THING for modern interior work.** Here is the flat wall finish that all others are measured by.

We want to lay all the facts before you. Drop us a postal card today.

The R. F. Johnston Paint Co.  
Cincinnati, U. S. A.

### Reynold's Asphalt Shingles

There is now a modern shingle which effects a combination of good qualities—being strong, light, and water proof—asphalt slate shingles. The discoverers or inventors of such shingles, were the H. M. Reynolds Asphalt Shingle Company of Grand Rapids, Mich.

Their product which they call the Reynolds Flexible Asphalt Slate Shingle is calculated to save considerable in the cost of insurance. They are made in three colors; namely, garnet, red and green; and cannot rust, warp or split. The cost of an up-to-date shingle is really inconsiderable when all the good points are enumerated.

Nothing can be more attractive than a building covered with the up-to-date, handsome and attractive asphalt shingles. They are of uniform size so naturally save a great deal of time that would otherwise be wasted in matching.

Testimonials from eminent sources advocate their general use. In fact, some of the fire marshals of the largest cities throughout this country are strongly in favor of using these fire-retarding shingles on every building within their fire limits.

A man now-a-days, who is successful in any line, must be progressive. This applies especially to you carpenters and builders. Each one of you who is quick to see and realize the value of any modern appliance which will tend to reduce the cost of building and at the same time prove more efficient, is the one who will succeed best. While some hare-brain schemes are advanced, still our natural intuition tells us the things to avoid. Asphalt shingles should be adopted as the stock in trade of every progressive builder. They are here to stay.

The H. M. Reynolds Asphalt Shingle Co. of Grand Rapids, Mich., will be glad to furnish any of our readers information on their product. Write them for their booklets.

# KISSELKAR TRUCKS

### Time and money saved to carpenters and builders

**T**HE record of this 1,500-pound Kissel-Kar Motor Wagon has made F. W. Wrampelmeier & Sons, Cincinnati, painters, wonder how they used to get along without it.

This same type is used by many carpenters and builders, although many call for one of the larger KisselKar models.

Hills, ruts, chuck holes, heavy roads or slippery pavements do not worry KisselKar Trucks. The long stroke motor, four speed transmission and differential lock take care of that.

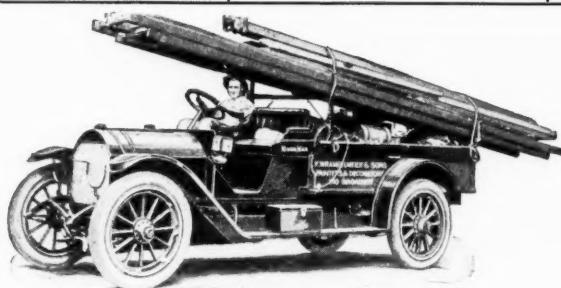
No such emergency factors are found combined in other trucks. Some have one of them, some another—but none have all.

KisselKar Trucks are good all the way through—every inch of construction studied—every principle tested, proved and verified—each part patterned to establish a perfectly balanced strength and stress-resistance.

There are seven chassis models of KisselKar Trucks, each designed and built for a different duty. The smallest has a burden capacity of 1500 pounds—the largest carries 5 tons. Those between are rated a 1, 1½, 2, 3 and 4 tons. Illustrated portfolio shows hundreds of KisselKar Trucks in actual service. There is a copy for you. Send for it.

**Kissel Motor Car Co., 546 Kissel Ave., Hartford, Wis.**

New York, Chicago, Boston, Minneapolis, Milwaukee, Kansas City, St. Paul, Los Angeles, Dallas and 200 other leading points.

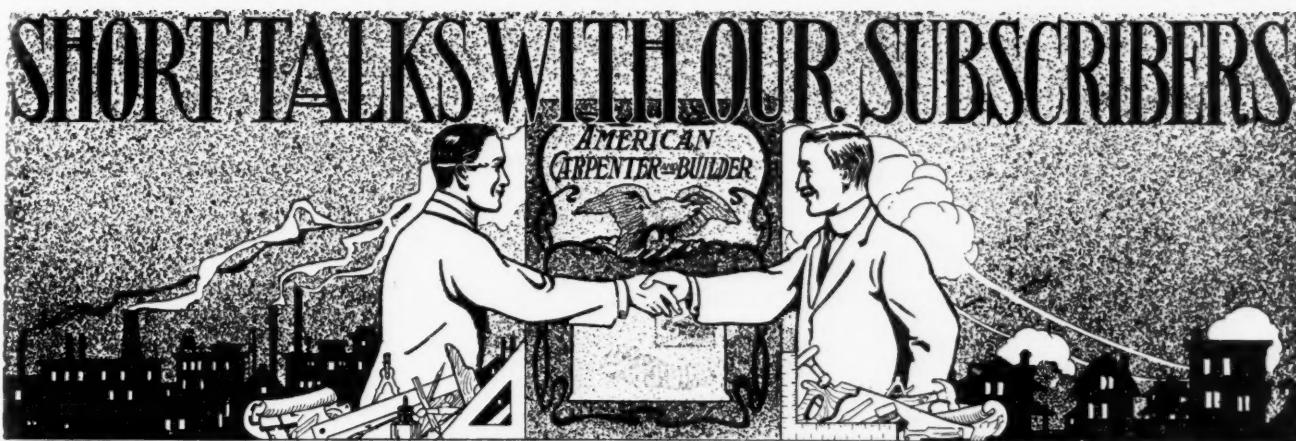


Nickel or Chrome Vanadium steel—heated—fortifies each vital point in a KisselKar truck chassis. Axles both of the heaviest forgings. Cone leather-faced clutch. Spicer Universal joints. Driver's comforts. Bodies built to suit.

### WHAT KISSELKAR SERVICE MEANS

A responsible institution agrees to take mechanical care off your hands, keep your car "tuned" up, and your depreciation down—AND DOES IT. KisselKar Service Buildings and Stations everywhere.

You will get SPECIAL ATTENTION if you tell Advertisers you read American Carpenter and Builder.



## Protection for Our Readers

**Y**OU will find the following statement appearing this month on the Editorial page. Read this declaration and consider what it means.

*The Publishers of the American Carpenter and Builder will not knowingly publish any advertisement of a misleading character nor accept advertising from any individual, firm or company whose business methods are open to question.*

We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.

The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.

In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

**W**E are glad to be able to recommend to our readers every concern using our advertising pages. These are selected firms. They have goods to offer which every up-to-date carpenter, builder, architect and contractor needs in his business. When you see them represented in these pages you may know they are here to serve you. They are your friends and you can trust them. You can depend on it that no snide games will be worked on Our Folks, if we know it.

Builders in the smaller towns have to rely on out-of-town concerns for a good deal of their building materials, tools and supplies.

The little local stock is good as far as it goes, but it doesn't go far enough; not for the wide-awake builder to-day whose customers want things of the most modern sort.

It is a great help then for builders to have such a list—of more than three hundred absolutely reliable manufacturers and out-of-town merchants, who appreciate their business,

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and to whom they can send with full assurance that they will be properly taken care of. Investigate the offers being made by our advertisers this month. Write for catalogs and samples. It will be to your advantage to give AMERICAN CARPENTER AND BUILDER advertisers preference, always.

## Back Numbers for Reference

IT has come to our notice again and again how much use our readers are making of their files of back numbers of the AMERICAN CARPENTER AND BUILDER. Many have their copies bound. All seem to refer to them constantly. They use both the editorial contents and also the advertising pages.

For example, we have just heard from one manufacturer who has let two years go by without advertising to our readers, yet during the past year he has had thirty-four inquiries and sales, as a direct result of advertising done prior to two years ago.

## The New Home-Builder's Section

**Y**OU will find in this issue a new group of departments that will interest both contractor-builders and their customers, the home builders. Contractors and builders can use this Home Builder's Section to bring them new business.

If you know of anyone who is thinking of building a new home or of remodeling; or who ought to be thinking along these lines, show him your magazine. Leave it with him; let his wife see it. They will be interested at once in the Home Builder's Section and in the several designs and plans contained in every number.

Talk building to them. Before you know it, you will have a nice contract to build a new home.

## Tell Your Friends About These New Features

**A**LMOST every issue of the AMERICAN CARPENTER AND BUILDER contains some new departments or novel interesting features. Show these to the other carpenters and builders. We want your friends as regular subscribers.

We are all working as hard as we know how to give wide-awake and intelligent builders the kind of a monthly magazine they really want. We are glad to know that you are pleased. Cordially yours,

Editor, AMERICAN CARPENTER AND BUILDER.

# CHICAGO SPRING BUTTS

## REPUTATION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



is of recognized merit and utility.

Send for Catalogue C 29. It fully illustrates and describes the most complete line of Spring Hinges manufactured.

**Chicago Spring Butt Company**

CHICAGO



NEW YORK

# BOMMER SPRING HINGES

ARE

## Quality Goods

BUT COST NO MORE THAN THE SUBSTITUTES

*This trade mark*



Reg. U. S. Pat. Office  
on every genuine  
Bommer Hinge

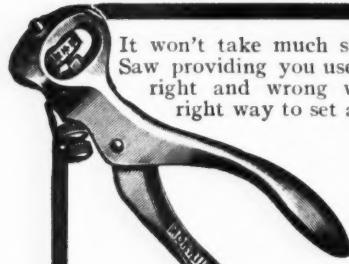


Durable—Neat—Reliable

# BOMMER SPRING HINGES

ARE THE BEST

Bommer Bros., Mfrs., Brooklyn, N. Y.



It won't take much skill to sharpen and set your Saw providing you use the proper tool. There is a right and wrong way to do everything. The right way to set and sharpen a Saw is with the

## Morrill Saw Set

A mechanically perfect Saw Set that will set any saw not over 16 gauge. Will take the wrong set out of a Saw and put in the right set at one operation. Look for the Trade-Mark: "Apex."

**Chas. Morrill** 275 Broadway  
New York



## You Can Pick Out

The houses that have been stained with

### Cabot's Creosote Stains

This is the residence of Mr. H. S. Kramer, E. St. Louis, Ill. (E. G. Garden, Architect, St. Louis, Mo.) and this is what Mr. Kramer says about Cabot's Creosote Stains: "The Stains have proven very satisfactory, and the most noticeable value of Cabot's Stains is to compare the colors with others that have been stained with some other kind. I used brown No. 249 for siding and green No. 305 for roofs."

You can get Cabot's Stains all over the country. Send for free sample of stained wood and name of nearest agent.

SAMUEL CABOT, Inc., Mfg. Chemists Boston, Mass.  
New York - Chicago

CABOT'S QUILT—Cold-proof and Sound-proof

# MARSH AYER

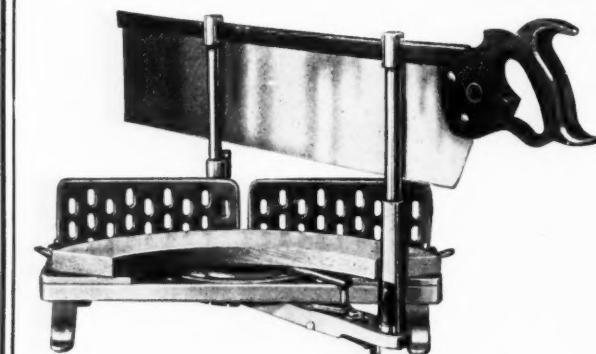
The Marsh Ayer Pressed Steel Miter Box is 25% lighter than any other standard size box. Weighs less than 13 lbs. complete.

*Our circular explains it fully.*

**H. C. MARSH CO.**

606 Race Street

ROCKFORD, ILL.



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